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**MANAGING THE ENERGY TRANSITION IN ESTABLISHED ORGANIZATIONS  
TOWARDS A LOW-CARBON FUTURE- CASE ROYAL DUTCH SHELL**

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Abstract <p>This thesis seeks to find results and clarify the energy transition in an energy sector through the central precedents and processes in established firms. The outcomes of these results are estimated and also considered how the energy transition process is managed in the aspect of incumbent multinational corporations. The research of major transition processes is significant since external factors and other parties affect on the internal operations of organizations, decision-making processes and in the contrary. Management level decision-making also needs to take multi-dimensionally various factors into account in transitions since the transition processes are extremely complex and take time. There are considered two different transitional approaches: multi-level perspective theory and corporate social responsibility in transition processes in the thesis. Moreover, document analysis is utilized as a research method in this study.</p> <p>The conclusion can be drawn from the research that natural gas, new innovations and technologies, such as the CCS technology, are the key operations in the ongoing transition in an energy sector. Renewable energy sources are also utilized and developed, yet their share is still too small in the global energy mix. By analysing the corporate management decision-making in an energy sector, it can lead to the conclusions that the transition towards a low-carbon future is already in arrears, and no certain party is solely responsible for it. However, with good strategic operations, established organizations are able to contribute to the energy transition process. Organizations should genuinely be responsible for their actions and also emphasize transparency, not just create strategies for publicity.</p>			
Keywords multinational corporations, climate change, oil and gas industry			
Additional information			

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## **1 INTRODUCTION**

This chapter introduces the topic of this study and it also explains the recent shifts, shortcoming and research gaps of the research field. The chapter clarifies the main definitions and key concepts of the thesis to the reader and also describes the purpose of the study and introduces the research questions. The methodology and research methods are defined in the introduction section. Moreover, the content of the thesis is constructed.

### **1.1 Background**

Climate change has been an acknowledged concern in the recent years, yet it has become one of the most substantial topics in the 21<sup>st</sup> century. Today, few experts disagree that the lifestyles and customs of people are severely degrading the earth's ecosystems. While the discussion continues on the actual impacts of humans on the environment, the industry is generally considered to be one of the major catalyst of the environmental degradation (Cohen & Winn, 2007). Organizations in an energy sector are increasingly forced to contribute more to the society or environment since the nature of their business. This applied specifically in multinational corporations (MNCs) due to the global business performance. MNCs are more visible globally, therefore, they generally confront with the variety of stakeholder difficulties and institutional contexts in both, host and home countries (Kolk & Tulder, 2010).

Energy is vital to the global economy since it enables the lifestyles people desire. However, only 20 percent of the global population lives in Organization for economic Co-operation and Development (OECD) countries, yet they use over 40 percent of the world's total energy capacity. Also the primary energy demand is growing by 30 percent between 2015 and 2040 due to the increasing population and the required living standards (According to the website of Shell 2018). However, simultaneously the world needs a major shift from carbon-based energy towards a low-carbon system.

In this research, the emphasis is in the transition process in an energy sector, yet it is considered how multinational corporations are involved in the inevitable transition process towards a low-carbon future. Indeed, the research is conducted through a case company to review the transition process in an energy sector. In addition, based on the gathered data

and given theory, the analysis will be conducted where of the conclusions will be drawn for the research questions.

## **1.2 Definitions and key concepts**

### **1.2.1 Low-carbon future**

A low-carbon future is defined to consider the content of the Paris Agreement in this thesis. The Paris Agreement aims to strengthen the global impacts on the threat of climate change by achieving the goal of keeping a global temperature rise this century well below two degrees Celsius compared to the pre-industrial levels. As United Nations Framework Convention on Climate Change (UNFCCC, 2019) states that the ultimate goal is to pursue efforts to limit the increase of the temperature even further to 1.5 degrees Celcius. In this thesis, a low-carbon future considers specifically greenhouse gas (GHG) emissions reduction in energy sector, and thus, preventing the warming of the climate system.

### **1.2.2 Energy transition process**

Energy transition process is defined to explain the process that occurs in a energy sector, always from the present to the future. Climate Change is a vast global challenge and the needed change is taking place in oil and gas industry to save the planet. In this thesis, the energy transition process profoundly describes the needed change to achieve the desired 1.5 degrees Celsius temperature level (UNFCCC, 2019). Thus, organizations, societies, goverments, consumers and individuals should consider various options to achieve the temperature level of a low-carbon future.

### **1.2.3 Socio-technical approach**

A socio-technical approach is a comprehensive definition for a transition theory that is applied in this thesis. The approach explains the complex transition process multi-dimensionally and it takes into account the technical and also the social perspectives of transition processes (Kemp et al., 1998). It also considers the society as a composition of various elements that consist of the infrastructure, technology, cultural aspects, markets, consumers, policy and scientific knowledge (Kemp et al., 1998; Elzen et al., 2004; Geels,

2004; Smith et al., 2005; Verbong & Geels, 2007; Smith, 2007). These elements are considered to be socio-technical systems, thus, major shifts in the systems are noted as socio-technical transitions. Therefore, the socio-technical approach considers new conceptual framework of socio-technical systems that compound the multi-dimensional perspectives together.

#### 1.2.4 Multi-level perspective theory

Multi-level perspective (MLP) theory is used to describe the transitions in the socio-technical systems in this thesis. The multi-level perspective theory explains processes that results from the dynamics of three different analytical levels: (1) Niches, (2) Socio-technical systems, and (3) a socio-technical landscape (Rip & Kemp, 1998; Geels, 2002, 2005).

#### 1.2.5 Lock-in mechanisms

Lock-in mechanisms are part of the multi-level perspective theory, therefore it is applied to study the impacts of the transition process in this thesis. The lock-in mechanisms are playing an important role while studying the challenges of MLP theory in the transition process. The mechanisms are able to lock in different factors at certain systems, which might directly affect, for instance, on the decision-making processes within organizations (Klitkou et al., 2015).

#### 1.2.6 Corporate social responsibility

Corporate social responsibility (CSR) considers to connect the organizations' social, economic and environmental concerns into their organizational culture, values, decision-making processes and strategy operations transparently to enhance better practices within the company, create wealth and improve society (Hohnen & Potts, 2007).

### 1.3 Goals of the research and research problems

The population of the world is increasing exponentially, therefore rising living standards and population growth suggest that the energy demand will continue to increase.



According to the website of Shell (2018), it has been acknowledged that the climate change and growing energy demand will have conflicts, and yet it is a major challenge for society and energy companies to create alternative solutions that mitigates the confrontation. Also various companies have already launched sustainability projects as to act as a pioneer in the inevitable energy transition process.

Since the increasing concerns of sustainability and energy production, companies, especially in an environmentally sensitive industry, are under the magnifying glass. Organizations are generally directly linked to environmental disasters in an energy sector, which can lead to premature judgement by people. Energy sector also suffers from increased public scrutiny since they have been seen as these major companies that continue to extract fossil fuels and drilling oil with seemingly less regard for the overall environmental impact. In addition, multinational corporations are generally mature organizations and with global influence they achieve a greater market power. With the extensive organizational structure of the multinational corporations, transition processes generally tend to be quite complex and take time, therefore all these aspects set the research topic in an extremely interesting light.

As was mentioned previously, climate change and sustainable development are relatively new phenomena, yet these concepts have been researched somewhat in the past years. The energy transition has become one of the most salient emerging problems within the past decade. Many successful companies are investing in sustainability research and development (R&D) sector to invent new technologies and applying them in their businesses to being part of the transition.

#### **1.4 Research gap**

Sustainable development has been, to an increasing extent, studied especially through corporate social responsibility. Energy sector has also been studied widely from various aspects, such as safety, human risks, management practices and various production mechanisms. However, the energy transition process is relatively new challenge and while there are few studies of the alternative energy sources in general, specific case studies are more rare. In addition, the energy transition research has generally been more focused on OECD and emerging countries, also countries that are operating as pioneers in

sustainability, such as Germany and Netherlands.

Research that considers carbon dioxide emissions and decarbonizing, are mostly studied using quantitative methods, therefore renewable energy research with qualitative approaches are rarely used. Also socio-technical transitions are generally linked into sustainability research since it considers relatively great transformations in socio-technical systems (Elzen et al., 2004).

This research is directed to an academic audience interested in energy transitions in a developing context, in the role of socio-technical transitions, corporate social responsibility practices in a transition framework. This thesis will hopefully contribute to the ongoing debates according to the transition process in an energy sector towards a low-carbon future.

## 1.5 Research questions

The theoretical framework of this research consists of socio-economic transitions, more specifically a multi-level perspective theory, and corporate social responsibility. The thesis aims to illuminate and increase the understanding of the inevitable energy transition process through a case company.

This thesis seeks to answer to the following research question:

***What are the central precedents and processes of the energy transition in established organizations in an energy sector and how these processes are managed?***

The following supplementary research questions assist in responding to the main research problem:

*Can multi-level perspective theory be applied in the energy transition, how?*

*How corporate social responsibility (CSR) occurs in the energy transition?*

The thesis considers the key precedents and processes of the energy transition in an energy sector through a case company's managerial level strategy, it also discusses how multi-level perspective theory and corporate social responsibility occur in the energy transition process

towards a low-carbon future.

## **1.6 Methodology**

Due to the nature of the research, a document analysis is used as a qualitative method research for gathering data in this study. The purpose of the research is to analyze the precedents and processes of the transition in an energy sector through a case company. According to Anttila (1996), a document analysis refers to the analysis that is verifiable and also compiles social actors into the research data. This data is not possible to gather through direct and immediate observations, but it combines the data from different sources into a comprehensive ensemble. The research analyzes current precedents of the transition process in an energy sector, and also compares the gathered data to the theory that is found in literature. The most efficient way to compile the data is using the completed sources of the strategic decision-making in managerial level, for instance annual reports of a case company.

The research is conducted as a single-case study, which will deepen the readers' understanding of the energy transition process in an energy sector towards a low-carbon future. The primary source of data for this study is a case company's public publications, such as annual reports and sustainability reports from the last few years since those provide reliable and the most essential strategic information. The secondary source of data will be gathered from online articles, public statistics, previous literature, websites and news. The theoretical framework will explain the used theories of the research in order to give deeper understanding of the study, thus, multi-level perspective theory and corporate social responsibility in transitions will be clarified in the following chapters.

## **1.7 Structure of the study**

The thesis will be assembled as follows; the first chapter introduces the topic of this research, and leads the reader on the subject of the research. It also describes the used methodology and the research methods, and also, introduces the research questions for the reader. The second chapter is built by theoretical framework of the thesis with two theoretical concepts from the multi-level perspective theory and corporate social responsibility, allowing the reader get to acquainted with each concept individually.

After the theoretical framework, the chapter three is introduced in which the research method is explained carefully. In this chapter, there is also compiled all the used data into a table in order to clarify the data gathering process for the reader. In the chapter four, the research result are brought up and supported with theory. The chapter five will introduce the findings and there will be further discussion and reflection upon from a contribution of the research. Finally, the limitations of the study and suggestions for further research are considered.

## **2 THEORETICAL FACTORS IN THE TRANSITION PROCESS**

This chapter gives an account on the transition that is taking place within an energy sector. The main subjects of this chapter is to understand how multi-dimensional extent has a reciprocal impacts on each other in transition processes. Also, this chapter clarifies corporate social responsibility as a strategic tool in the energy transition. First, the multi-level perspective theory is explained to give a comprehensive understanding of the dynamics of all organizational levels and how these levels are also in constant interaction between various factors in transition processes. Secondly, corporate social responsibility is explained thoroughly as a strategic tool in transition processes since it will be explored in the following chapters. A clear review of the theories in the theoretical framework is significant as it provides a great basis for the following chapters.

### **1.1. Socio-technical approach in the transitions**

Due to the environmental concerns, carbon dioxide emissions have continued to rise, therefore reducing carbon emissions by 80 percent can be only executed by deep-structural changes in socio-technical transitions (Geels, 2012). As will be more specifically explained below, the socio-technical approach in transitions considers a specifically defined factor as a constitution of elements that consists on technology, policy, markets, consumers, infrastructure, cultural background, scientific knowledge and environment (Kemp et al., 1998; Smith et al., 2005; Verbong & Geels, 2007).

One of the main reasons to emphasize the socio-technical transition framework in this thesis, is that it considers the research problems multi-dimensionally, in other words, it reviews the transition process profoundly on the social and also the technical perspectives, and yet it brings a new insight into the process. These perspectives are studied for several reasons, first, the theory pursues new conceptual framework that combines complex and multi-dimensional elements together. The dynamics of the elements will develop in a framework that seeks to explain the interactions and the interdependencies between different levels. Secondly, the socio-technical transitions have significant influence on governmental factors, especially in Europe (Heiskanen et al., 2009). Thirdly, even if multiple transition studies already consider space, scale and power (Pickles & Smith,

1998), the socio-technical theory conceptualizes these factors geographically, and therefore, brings new insights into the transitions (Lawhon & Murphy 2011).

The socio-technical transition analysis takes influence on theoretical resources from across the social sciences, such as innovation studies, sociology, and institutional theory (Geels, 2004). Also, political science and other governmental theories have had major effect in the development process (Meadowcroft, 2005). However, these studies have demonstrated that major transformations are developed over decades through the social and the technological changes (Scarce & Smith, 2009). In addition, the time scale of the transition development and the impacts of the transitions to the corporate strategy bring challenges to understand the approach on practice. As Lawhon & Murphy (2011) have referred that if the transition researchers are able to understand better the socio-technical transitions, and how it affects on practice, they could apply it in the future. However, the political nature of transitions have to also change. A sociological sensibility embraces the institutions, for instance people, consumer relations, and the social expectations. Therefore, the mutual reinforcement in these elements is able to create the structural patterns that initiates the comprehensive sociological change in these institutions (Smith et al., 2010).

#### 2.1.1 Multi-level perspective theory

As earlier were explained, the socio-technical approach considers the society as an assembly of various elements that consist of the infrastructure, cultural aspects, technology, markets, consumers, policy and scientific knowledge (Kemp et al., 1998; Elzen et al., 2004; Geels, 2004; Smith et al., 2005; Verbong & Geels, 2007; Smith, 2007). These elements are classified as the socio-technical systems and major shifts in these systems are considered as the socio-technical transitions. The elements in socio-technical systems are generally maintained, replicated and modified by various actor groups, such as consumers, researchers, politicians, industries, and policymakers. Therefore, these transitions have been seen as co-evolutionary processes, which have taken years, even decades, to involved by many actors and groups (Geels, 2012).

The multi-level perspective theory (MLP) emphasizes non-linear processes, which results from the interaction of the three different analytical levels: (1) Niches, (2) Socio-technical systems, and (3) An exogenous socio-technical landscape (Rip & Kemp, 1998; Geels,

2002, 2005). The three different levels have their own major roles in the socio-technological transition processes, and the key focus of the niches is to develop new radical innovations, novelties, for the socio-technical systems, while the socio-technical systems affect on the socio-technical landscape (Geels, 2012).

Within the MLP, the novelties, that locate in the niches, emerge in protected areas within the organization, for instance in the organizational projects, laboratories and the research and development (R&D). After recognizing a great novelty, it will be placed in the niches. The actors that are already set in the socio-technical systems are expecting the novelties to reach them or even replace them. However, replacing them is not effortless due to various lock-in mechanisms in the socio-technical systems, but the niches are vital for the transition processes, because they provide the foundation for systemic change (Geels, 2012).

The extended research on the niche-innovation (Kemp et al., 1998; Hoogma et al., 2002) is divided into the three social processes of the niches: (1) The learning process of the dimensions about defeating imperfections, considering different issues of organizations, market demand, and user behavior etc., (2) The articulation and the adjustment of expectations or visions, that provide the guidance and the direction for the internal innovation activities, and (3) The creation of the social networks to increase the resource base of the niche-innovation. The niches are generally considered as experimental or demonstration projects which allow the novelties to experience innovations in real-life circumstances (Geels, 2012).

The novelties have to compete with technologies that have gained value already from well-developed systems around them. The configuration of the existing elements, for instance technologies and infrastructure, are set in the socio-technical systems. Geels (2012) states: “system elements are reproduced, maintained and changed by social groups and actors”. This means that the elements are not operating in a vacuum and politicians, industries, policymakers, researchers and consumers affect directly on the socio-technical landscape and systems (Giddens, 1984).

In the existing socio-technical system, the novelties (the innovations) are mostly emerging gradually, due to the lock-in mechanisms and the path dependence. However, the transition processes are still possible, and these processes proceed rather predictably in certain ways.

The lock-in mechanisms can be considered as follows: specific shared beliefs are able to make actor blind for outside developments, for instance to consumer lifestyles, regulations and laws or the market changes. These blind spots, and also ignorance, can build up the market entry barriers, the infrastructure challenges, the incomplete actions for sustainable development etc. (Walker, 2000; Unruh, 2000). The concept of the socio-technical systems includes, not only organizations or engineers, but numerous social groups, such as policymakers, special-interest groups and consumers. Also, these actors in the socio-technical systems can be restricted by the rules and regulations at the collective level of the system. Therefore, the transformation process generally requires more than an individual action (Rip & Kemp, 1998). It must be consider that the socio-technical system is an interpretative concept that seeks to investigate the deeper level of activities in the system structure, for instance, shared beliefs and norms of consumers. However, while the concept of socio-technical systems emphasize tangible and measurable elements, such as the market shares, regulations, the artifacts and the consumption patterns, it must consider more intangible regulations, since they are needed in the concrete transition process (Geels, 2012).

The socio-technical landscape is the extensive context that has holistic influence on niche and system dynamics. The landscape contains comprehensively everything accorging to organizations' business and its environment. It has been described as a metaphorical concept wherein people interact with each other (Rip & Kemp, 1998). It considers different aspects of political ideologies, beliefs, societal values, concerns, macro-economic trends, and the media landscape. The socio-technical landscape is a major structure that is beyond the control of individual actors (Geels, 2012). The three levels of the socio-technical approach, more specifically the dynamics of the multi-level perspective theory, is introduced in the figure 1 below. The socio-technical systems are implemented within the landscape, whereas the niches occur either inside or outside the systems (Geels, 2012).



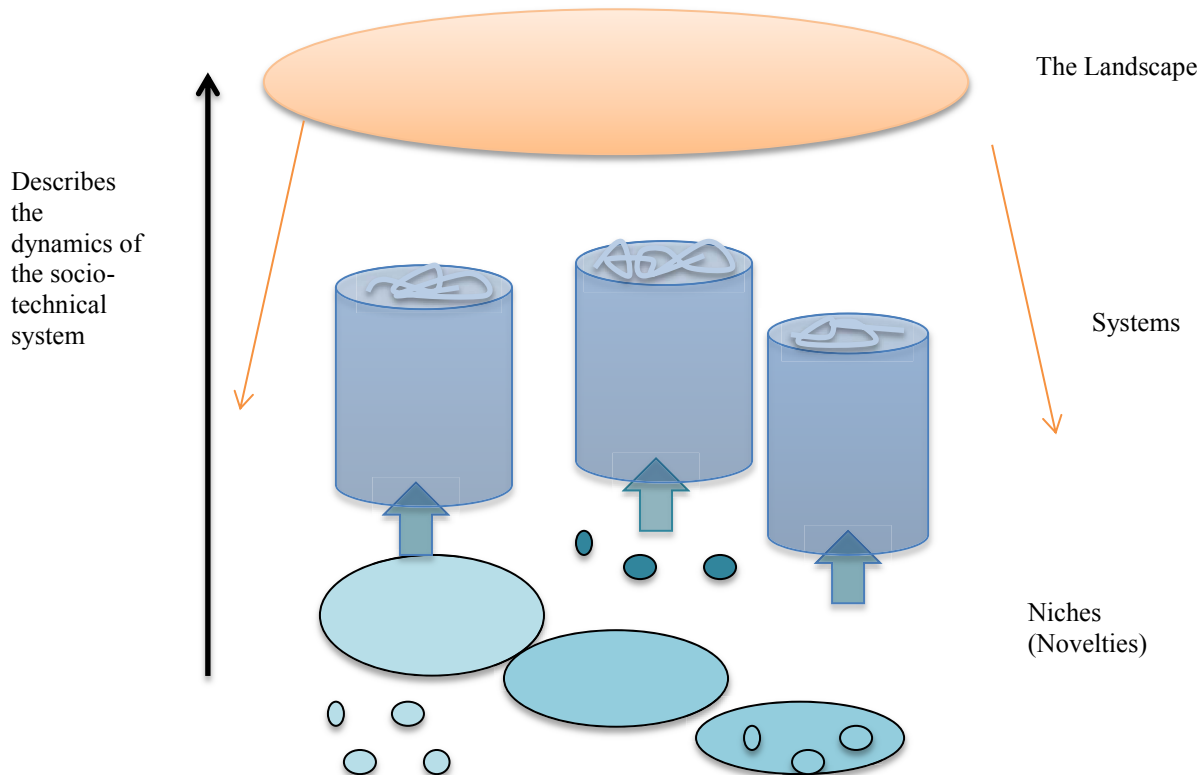


Figure 1. The dynamics of the multi-level perspective theory (Adopted from Geels, 2012, p. 473)

### 2.1.2 The dynamics of the multi-level perspective theory

The figure two introduces the dynamics between different levels of the socio-technical approach. It more specifically explains how different factors and levels interact with each other in the multi-level perspective theory. Each transition is exclusive, however, before the dynamic interaction emerges in the transitions, it occurs in various processes between the different levels of the socio-technical systems. According to Geels (2012, p.473), these levels are: “(a) Niche innovations build-up internal momentum, (b) Changes at the landscape level create pressure on the system, and (c) Destabilization of the system creates windows of opportunity for niche-innovations”.

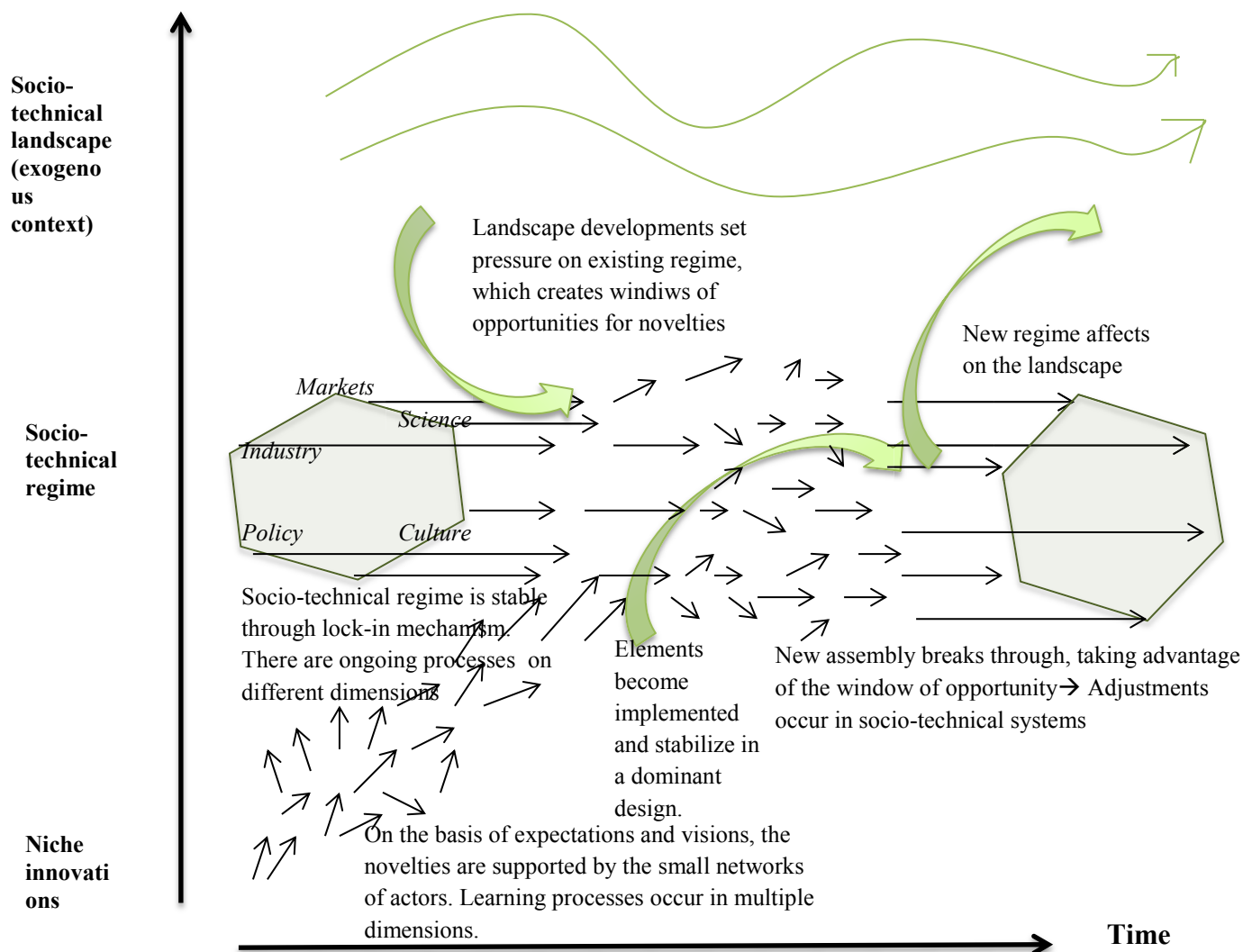


Figure 2. The multi-level perspective theory applied in transition (Adopted from Geels, 2012, p. 474)

A significant observation is that the MLP theory eliminates simple causalities in the transitions. There is no a factor creating interaction with other factor, instead, there are numerous processes on multiple levels that continuously affect on and strengthen each other, it is called circular causality (Geels, 2012).

The MLP theory differs from the other economic theories and models, psychological studies and engineering approaches that are considered in renewable energy studies, since, rather than emphasizing technology aspect or behavior studies, the MLP theory considers the following aspects: (1) Co-evolutionary and methodic approach. This means that the transitions are not driven by prices and technological transformations, but they are included in co-evolutionary developments, which interact with the multiple elements in the

socio-technological systems, such as technology, policy, consumer behavior, infrastructure, cultural meaning, industry and markets, (2) Element-based approach. The MLP theory considers strategies, actions and interactions between the various intangible elements in the socio-technical systems, for instance, consumer behavior and values, (3) Stability and transformation. On the other hand, the MLP emphasizes the lock-in mechanism, stability and resistance for the transitions, but it also seeks opportunities for a radical change, and (4) Complex dynamics. As previously was mentioned that the MLP theory does not follow the linear causality nor interact with one factor. Instead, it underlines different developments, co-evolution, new innovations, alignments, and complex causalities (Geels, 2012).

The MLP theory has been described to utilize more heuristic methods than producing the correct answers for the analysts. Heuristic method is an approach for problem solving, learning and producing sufficient data for reaching an immediate goal by guiding the analyst's attention to the fundamental questions and issues. The MLP theory is described to be an interpretive research by nature and it is specifically suited to study uncertain and complex processes that include many different actors such as the transitions (Geels, 2012). Geels (2012) has also stated that social groups and other external factors, such as environmental pressure or public opinions, have comprehensive influence on the trajectories and the multi-level alignments of the MLP. Therefore, the success of the transitions cannot be guaranteed, due to the insufficient momentum of novelties or other possible setbacks. Also, if the tension between existing systems remains too small without any conflicts, new opportunities for niche innovations might not be opened. After all, as Smith et al. (2010, p. 441-442) emphasize: "the MLP provides a relatively straight forward way of ordering and simplifying the analysis of complex, large scale structural transformations in production and consumption".

### 2.1.3 The limitations of the multi-level perspective theory

There has been some criticism towards the MLP approach concerning for especially the macro-level, i.e. the landscape, which has been less conceptualized and operationalized (Whitmarsh, 2012). It has remained rather unclear, which factors occur at the macro-level and micro-level, in other words, system and niche levels. A distinction has been made to divide certain societal factors that might drive or inhibit the dynamics at the macro-level.

These factors are considered to be, for instance, global economic or cultural conditions, such as environmental pressures, climate change concerns, recession etc. Also, the distinction is drawn between the actors and institutions that are responsive at the micro-level. The key problem is that, while attention is addressed on the micro-level, the macro-level suffers lack of understanding (Withmarsh, 2012).

In the recent research, the limitations have been increasingly studied, however, in this thesis only the relevant limitations will be considered as follows: (1) The MLP theory emphasizes more the technological aspects by forgetting the social and political relations, (2) If the focus is only on technological aspects, the elite factors are favored in the decision-making process, (3) The theory is geographically unfair since the systems and the niches are generally located in the same geographical scale, and (4) The unequal allocation of the power relations roles affect on the outcomes of the socio-technical systems (Withmarsh, 2012).

The elements, artifacts, are playing significant role in the socio-technical transition research, but as Meadowcroft (2009) refers the socio-technical transition research should take into consideration more societal aspect, i.e. to analyze how to implement these elements into the society and what are the consequences. The analysis needs to be studied by considering how the artifacts contribute the transition processes (Meadowcroft, 2009). Also, it is important to consider how the various elements affect on the landscape. Other limitation of the MLP theory is that while focusing only the technological elements, the decision-making process becomes too narrow. Specifically, the socio-technical transition studies consider only the elite factors in the decision-making, i.e. the studies generally privilege the perspectives of decision makers, such as corporate leaders, innovators, scientists etc. Therefore, it completely excludes the other significant factors from the transition process, for instance the whole societal aspect. The transitions would probably succeed better if they are managed through pluralistic decision-making processes, wherein visions are shared, listened and appropriated such way that the technological innovations can be developed (Meadowcroft, 2009).

The MLP theory has geographical limitations as well, and they are applied in every country. First, Meadowcroft (2009) refers that the theory inadequately describes the dynamics through the specific forms of the socio-economic factors. Also institutionalized

knowledge is implemented in a space-time context, which is beyond the national scale. Second critique occurs when the different levels of the concept are considered to be conceptually related to the socio-technical system. Due to this, the systems and the niches are generally located in the same geographical scale, whereas the landscape affects on the whole concept where the systems and the niches are able to compete for dominance. Eventually, the last concern compiles all the previous limitation together, and thus, is more comprehensive than others. The fundamental concern results when focusing only on the element that produces a narrow and quite apolitical lens on the processes that affect on the entire transition process. For instance, the management has more power to get their visions through for corporate operations, therefore it is significant to understand how uneven power relations work within the transition arena. The uneven power relations create situations where important visions might include or exclude various elements, groups of people or social priorities etc. (Meadowcroft, 2009).

## **2.2 The corporate social responsibility**

### **2.2.1 What is the corporate social responsibility?**

Corporate social responsibility (CSR) is not a new phenomenon, it is rooted in the tradition of the past decades. It has rapidly grown in the last 20 years, since it is recognized as a good concept almost in every company (Hancock, 2014). Even the most business-based industries are also noticing the value of the CSR in their strategy-planning today and it increasingly takes into account different aspects of "general good", such as human rights, corporate ethics, employee relations, society relations, legislation and the environment (Moir, 2011). Since it is not a new phenomenon, it has been redefined and reinterpreted multiple times in the past 20 decades. Therefore, the concept has number of other names, such as corporate responsibility, corporate ethics, corporate accountability, responsible entrepreneurship etc. (Kirat, 2015). However, to avoid confusion of other available conceptualizations of the CSR (Caroll, 1999) the following definition of the concept is used in this thesis: The fundamental idea is that the CSR is an evolving phenomenon that does not have a universal specific definition. It is understood to connect companies' social, economic and environmental concerns into their organizational values, culture, decision-making processes and strategy operations transparently to foster better practices within the company, create wealth and improve society (Hohnen & Potts, 2007). CSR also connects

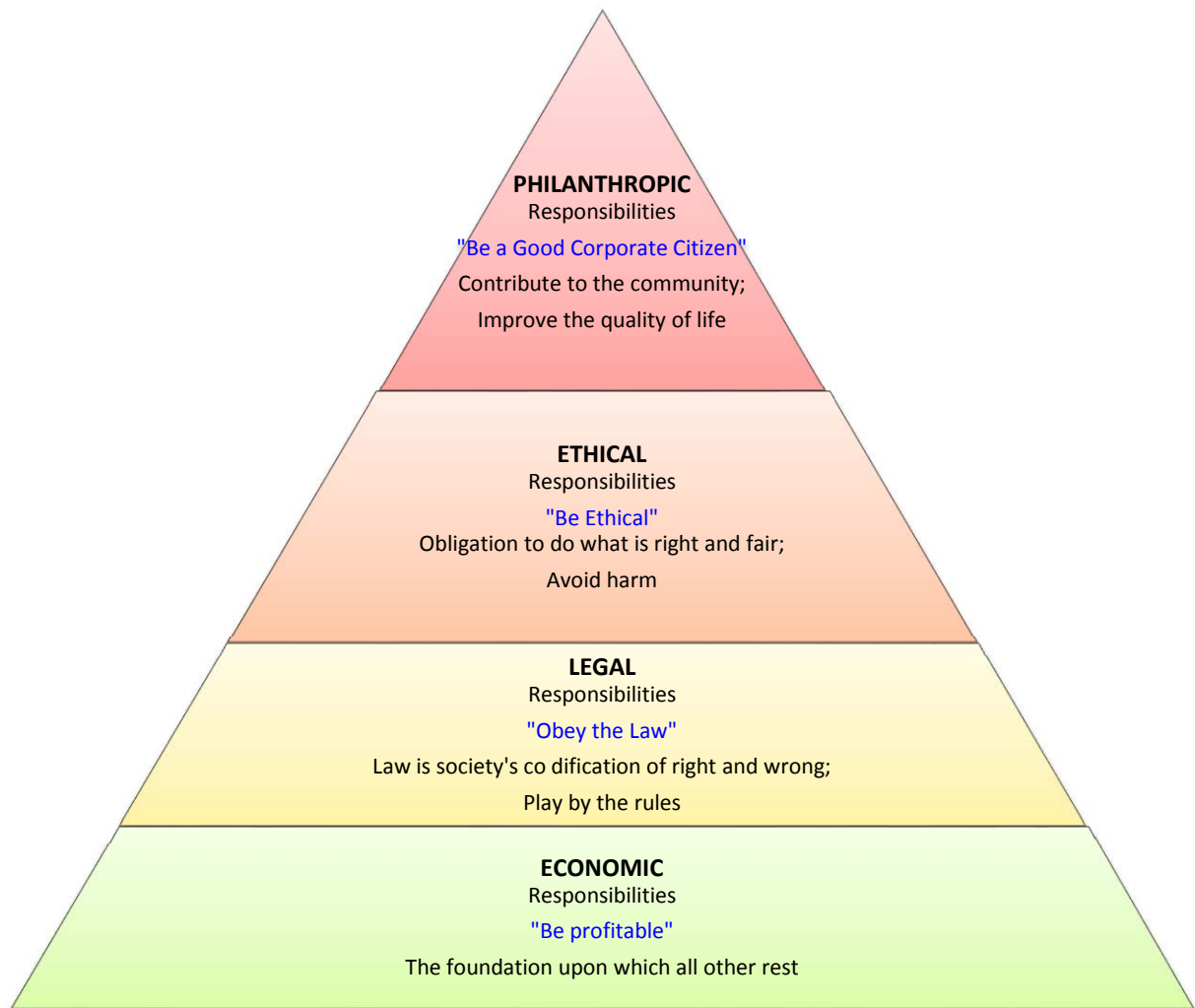


Figure 3. The CSR pyramid (Adopted from Carroll, 1991, p. 39-48)

stakeholder's expectations into the triple bottom line of social, economic and environmental performance (Kirat, 2015).

In spite of the huge amount of data and research, the CSR literature is still highly fragmented. One of the reasons of the fragmentation is different disciplinary and conceptual varieties (Carroll, 1999). The CSR is generally studied at the macro level, i.e. organizational and institutional level, as also in this thesis, but the recent research has taken into account different levels of analysis. Thus, the micro level, in other words, individual level, has been considered as a new point of view in the CSR concept (Auguinis & Glavas, 2012).

As earlier was mentioned, the CSR is generally based on four fundamental factors, such as environmental operations, economical aspects, governmental legislation and social

activities (Hohnen & Potts, 2007). Within these factors it considers more specifically companies' corporate governance, environmental management, health and safety operations, such as workers' human and labor rights, and also corporate ethics. In addition, it deals with community involvement, industrial relations, development and investments, such as healthcare, sports, educational projects and cultural activities. The CSR is also concerned by customer loyalty and it emphasizes fair competition, thus try to reduce anti-bribery and anti-corruption by being transparency, with different measures, performance reporting, and good supplier relations (Kirat, 2015).

### 2.2.2 The stakeholder engagement in the corporate social responsibility

As earlier was mentioned, the fundamental idea of the CSR is considering business as an integral part of society, the global community, where the environment supports it, since business does not exist in a vacuum. It consist of a numerous relationships with different stakeholders, such as customers, suppliers, communities, employees, investors. Stakeholder engagement is emphasized in the CSR, since it is vital for the company to stay connected to the parties that have actual interest and effect on their business. It is considered as a continuum of interaction that reflects the degree of influence shareholders have in the decision-making processes (Hohnen & Potts, 2007). However, it depends on the company how involved stakeholders are in the business operations, it is possible to simply inform stakeholders of companies startegic plans or they might be deeply involved in the decision-making process.

The significance of the stakeholder engagement is emphasized when company appears to be unresponsive to stakeholders needs. While employees might be unappreciated, suppliers might have lack of trust, the partners might be less cooperative, and investors might get insecure, the company must be informed and ready to react. These actions affect comprehensively on companies business operations, and at worst, it can impair company's public image and business performance (Hohnen & Potts, 2007). Hohnen & Potts (2007) state that successful companies should comprehesively implement the CSR practices, especially the stakeholder engagement, in their strategy. They emphasize the four main factors of the stakeholder engagement. These factors are (1) building social capital, (2) reducing risk, (3) driving innovation, and (4) integrating these elements in the company's strategy.

Companies rely on several types of capital, such as economic, natural and social capital. The social capital is underlined in this thesis, since it supports the topic and research questions of the thesis. In business environment today, where corporate image is emphasized, the social capital is considered at least as important than other forms of capital, and yet it is obtaining greater importance due to the global digitalization. Also Hohnen & Potts (2007, p.77) refer: "The extent to which social capital creates value depends on the context, the perspective of the stakeholder and the nature of the corporation's strategic goals. While it is not possible to measure the value of a corporation's social capital, it is possible to assess the quality of a firm's stakeholder relationships and the potential contribution of social capital to the creation of business value". In a fast-changing and global world, various challenges might appear in different operations, for instance with suppliers, employees, regulations and environment etc., therefore, with proper the CSR engagement, it is possible to reduce risks by being able to detect these challenges and act fast on request (Hohnen & Potts, 2007). Stakeholder engagement can also improve to identify new opportunities, information flow within the company and generate novel ideas. For instance, some researchers have advocated that if the organizations apply to an interactive learning process with the stakeholders and operate transparently in every level, they will have an advantage in the increasing knowledge-driven world. However, none of the above applies, if the engagement process is not finally integrated in the management level. The comprehensive utilization of the CSR concept needs to reach strategic, financial, R&D, supply chain, product development, marketing and communication departments to encourage further alignment in the numerous business sectors (Hohnen & Potts, 2007).

### 2.2.3 Is CSR a strategic or reputational tool in the transition process?

The CSR has gain reputation as "a success-maker" in organizations, therefore it has increasingly obtained a important and inevitable role in every organization's success story and good corporate image. Generally successful companies have valued the CSR in their strategy-planning processes and have integrated it in their company operations. However, the current concern of the CSR is primarily the additional contributions that companies make to foster the wellbeing of society (Kirat, 2015). As Kirat (2015, p.439) states it well: "In particular, this is reflected in the strong focus on the idea of caring about the welfare of society as a whole. Accordingly, contributing to "doing well by doing good" is frequently



encountered credo for corporations in business practice and business research.” The CSR can indeed contribute a vital cooperation between society and business, but it has to be clear that the company seeks to enhance its business activities for the greater good rather than just create a better reputation for itself. The CSR can also offer great opportunities to benefit from, such as customer loyalty, good corporate image and reputation, penetration of new markets and, gratified and committed employees etc.

Societal expectations of being responsible have increased in the past few years, which has led companies to integrate more new techniques, strategies and tactics to get the best business performance with the CSR (Kirat, 2015). However, managers continually encounter demands from the stakeholders and shareholders (McWilliams & Siegel, 2001). These expectations might create pressure for the companies in every area of the CSR, but especially to consider more sustainable development in their decision-making processes. Since sustainable development has become more significant today, external factors, such as stakeholders demands, societal expectations, and regulations and laws set pressure for the companies to enhance their business activities more sustainable direction. It is important to emphasize that the CSR refers to companies’ actions and policies, therefore these actions and policies are influenced by all levels of organization’s internal and external factors (Aguinis & Zedeck, 2011).

The CSR must be measured from the different business areas, since with no assessment and reasearch, great strategies cannot be developed. The challenge of the concept is that most of the organizations argue to have well-planned strategies, however, their plans might not even be real strategies. Companies might create these strategies to attain the great media attention and create the better corporate image. It appears to happen in numerous industries, for instance in oil and gas business (Kirat, 2015). Companies are especially paying a great attention to the coverage of the media attention through their own channels and through the common media. Maintaining great relationships with the local media and its stakeholders enable the company to have corrupted activities, for instace to have a control over the local media and its publications. As Coombs & Holladay (2011) argue that there is a thin line between implementing a genuine social responsibility in CSR programs or simply appearing responsible for a good media PR. The information is visibile to everyone due to the digitalization today, so might that be the reason, which has driven organizations pretend to be more responsible than they truly are? However, organizations

should recognize that the reputational harm can be just as damaging to its business as legal liability, thus, investments in socially responsible behavior may bring positive returns in the long run (Kirat, 2015).

#### 2.2.4 The sustainable development in the corporate social responsibility

The fundamental problem of the CSR concept is that the business sector should play deeper role in organizations rather than just focusing on the core business aspect, producing services and making profits. It consists of society- and environmentally driven actions, by meaning that the business sector should emphasize more the well-being of the society and go beyond its profit-oriented commercial activities (Robins, 2005). Strong sustainability needs to also consider sustainable consumption patterns, and organizations have their role in contributing to it (Málovics et al., 2008).

The main factors fostering the CSR in organizations have been stakeholder expectations. In addition, the faster implementation also contributes the large scale of the industrial change, investments considering social interest, environmental concerns and comprehensive transparency of business operations. Thus, the demands and the opportunities to control organizations' behavior have also rapidly increased in the 21<sup>st</sup> century (Málovics et al., 2008). Rondinelli & Berry (2000) have studied on the sustainability reports of multiple multinational corporations (MNCs), and yet they have divided the CSR activities into external and internal practices. These external practices consider environmental improvement projects within the company; how employees and managers collaborate on these projects and how they support the community, also considering how national and international efforts improve sustainability. In addition, the external practices also comprise strategic alliances between MNCs and environmental, and governmental actors to solve environmental challenges together. Internal practices include following the regulatory compliance to reduce pollution, and also invest into internal development processes to enhance more beneficial environmental impacts. Therefore, external practices emphasizes more the corporate image, where as the idea of the internal practices is to improve eco-efficiency within the company. Although, even if the external practices is focusing more to the reputational aspects, they generally reflect more narrow part of the company's environmental management activities, and do not have the greatest potential effects on contributing to sustainable development. While, the internal practices have the

major impact on company's environmental management activities (Rondinelli & Berry, 2000).

The CSR concept can also be divided on the basis of the corporate interests. Málovics et al., (2008) have categorized this concept into three main groups; (1) Must-responsibilities, (2) Should-responsibilities, and (3) Can-responsibilities. Must-responsibilities consist of consumer needs, therefore neglecting them would risk immediate survival, whereas should-responsibilities are vital for the long-term survival. These responsibilities are based on the expectations of the stakeholders and the society, however, defaulting them can cause challenges in business, such as boycott or disinvestment. Can-responsibilities are the most difficult group, since these responsibilities are not expected by the society, they are not pressed by the law or the market and neglecting them no sanctions apply. Although, these responsibilities are able to create the better corporate image, thus they should be considered in the strategic-planning process.

Studying the empirical research of the motivation of the organizations for implementing environmental and social investments, the findings reveal that organizations are generally motivated by business reasons (Málovics et al., 2008). Researchers seem to agree that the both business and ethical point of views results from the implementation of the CSR measures. However, the environmental and social investments are mainly business-driven (Rondinelli & Berry, 2000). Since the CSR is mainly applied as long as it brings the long-term competitiveness, profit and the better corporate image, most of the organizations utilize the must and should-responsibilities (Málovics et al., 2008).

### **2.3 Summary**

At this point, the two main themes of the thesis have been thoroughly introduced. Through these main themes, the empirical analysis will be created along with the gathered data in the following chapter. For now, the reader has gotten deeper idea how the multi-level perspective theory can be utilized in major and complex transition processes as also the reader has gained deeper understanding how each factor and operation have an impact on each other in transitions and on the contrary. The reader has also learned that in transitions multi-level perspectives are needed since it is extremely significant to take into account technical as social aspects in transitions. The second theme considers corporate social

responsibility from the business management perspective. The chapter explained how CSR is a significant strategic tool in the managerial decision-making processes if organizations would implement it comprehensively in organization strategy. To gain an understanding of how CSR practices can be utilized with decision-making processes, the basis of the practices must be profoundly understood.

The views on multi-level perspectives in transition processes as well as corporate social responsibility in the decision-making are based on the findings of previous research, which creates a basis for the empirical part of the thesis in the following chapter. First, these themes are analyzed individually, and finally, the conclusions are drawn to discover the answers to the research questions.

### **3 METHODOLOGY**

The document analysis is introduced as a research method in this thesis, and also the data collection and its analysis are considered in this chapter.

#### **3.1 Document analysis as a research method**

While studying the development of a specific phenomenon or a historic background, interviews or surveys might not alone serve the needed amount of data, and yet with the qualitative research methods, the empirical data collection might be unreasonably time consuming and challenging, occasionally even impossible. In general, the phenomenon that is being studied usually contains already produced data. Thus, the data can be any kind of spoken, handwritten or printed report of the substantial results according to the phenomenon (Anttila, 1996), and it can be originated in an expert interviews, newspapers, journal articles, public statistics, previous literature, online articles etc.

Qualitative research is primarily exploratory research and it is used to get understanding of underlying opinions, reasons and motivations. The qualitative research brings insight into the problem and assist to develop ideas or hypotheses for the studied issue. It does not consider statistical generalizations, but it strives to create the theoretical interpretation for the phenomenon (Tuomi & Sarasjärvi, 2002).

As Bowen (2009) states that document analysis is a qualitative research method in which documents are interpreted by other researchers to give insight and meaning around an assessment topic. Analyzing documents as a research method include similar processes as focus groups or interview transcripts, and all these processes are similarly analyzed. Document analysis is also a social research, and it is a vital research tool for creating novel hypothesis and meanings to already existing phenomena (Bowen, 2009). The documents consist of different kind of data, for instance articles, archive materials, annual reports, letters, photographs, movies, even some objects etc., therefore, to utilize already completed data is sometimes the only possibility, since the collection of the novel data might be impossible or extremely difficult in some occasions (Anttila, 1996). The document analysis is applied as a research method in this thesis, since the case company has extensive data

base of its strategy and history through numerous reports and materials. It is possible to create various hypothesis on the strategic planning process of the case company for the future by reflecting its recent history and the precedents. The document analysis enables analyzing the research problem on multiple aspects considering the theoretical frameworks of the thesis as well.

### **3.2 Data collection and analysis**

According to Anttila (1996), the document analysis is generally divided in original sources, in other words, primary sources, and secondary sources. Primary sources are the authentic sources that are extremely reliable. Whereas secondary sources are based on the notion of some other source. These sources are usually preprocessed and might contain author's own perceptions and aspects. Therefore, while utilizing secondary sources, it is extremely important to consider the source criticism (Anttila, 1996), since the information might have been reinterpreted multiple times. Anttila (1996) also emphasizes that researcher must understand how to tell the primary and secondary sources apart.

When utilizing secondary sources, it is vital to consider that the other author has its own aspects and the world view, and it might not fit in the researcher's set of values (Anttila, 1996). However, to avoid the problematics that the secondary sources might set, it is significant to understand the mindset of the author. As Anttila (1996) recommends that the researcher must find the primary source of that particular production before analyzing.

Digitalization has facilitated the search for information, and today, the data is available in every sources. However, the key problem is how to recognize the relevant information for the research. While the data was collected in this thesis, the question occurred that how to find the most essential material. After the case company and the comprehensive topic was set, the data was gathered from the general topics. Through the data search, the specific topic began to clarify and the most essential data sources were Geels et al. (2004) "System Innovation and The Transition to Sustainability", Geels (2012) "A Socio-technical analysis of low-carbon transistions: introduction the multi-level perspective into transport studies", and Hohnen & Potts (2007) Corporate social responsibility: An implementation guide for business". For instace, through the article of Kirat (2015) "Corporate social responsibility in the oil and gas industry in Qatar perceptions and practices", it was possible to deepen

the information about the sustainability in a energy sector. Also, the author got new relevant information from the reference lists of the scientific articles. In order to understand how to utilize the primary and secondary data in this thesis, the author aims to consider all used data in the chronological order.

The relevant data were utilized in the empirical section of this thesis to create a comprehensive analysis of the energy transition process towards a low-carbon future. The primary used data is from the case company's annual reports and sustainability reports. Moreover, the secondary data were gathered from online articles, news, public statistics, previous literature, and from case companys' website and other documents. The only possibility for the data collection was to use public materials since the strict regulations and trade secrets of the case company. The author met few representatives from the case company, yet they emphasized that all the information that are allowed to publish can also be found from the company's public reports.

Table 1 below compounds all the primary and secondary sources used in the empirical analysis to give the reader a clear and structured view of the data set in this thesis.

<b>Name of the source</b>	<b>Year of publication</b>	<b>Length (Number of pages)</b>	<b>Source (e.g. website)</b>
<b>Shell Annual report</b>	2018	300 pages	www.shell.com
<b>Shell Annual report</b>	2017	260 pages	www.shell.com
<b>Shell Annual report</b>	2005	228 pages	www.shell.com
<b>Shell Annual report</b>	2004	140 pages	www.shell.com

<b>Shell Sustainability report</b>	2018	86 pages	<a href="http://www.shell.com">www.shell.com</a>
<b>Shell Sustainability report</b>	2017	71 pages	<a href="http://www.shell.com">www.shell.com</a>
<b>Shell Sustainability report</b>	2016	74 pages	<a href="http://www.shell.com">www.shell.com</a>
<b>Shell Energy Transitions and Portfolio Resilience</b>	2017	42 pages	<a href="http://www.shell.com">www.shell.com</a>
<b>Shell Energy Transitions and Portfolio Resilience</b>	2016	41 pages	<a href="http://www.shell.com">www.shell.com</a>
<b>Shell website</b>	2018	-	<a href="http://www.shell.com">www.shell.com</a>
<b>The United Nations Framework Convention on Climate Change</b>	2019	-	<a href="http://www.unfccc.int">www.unfccc.int</a>
<b>International Energy Agency</b>	2019	-	<a href="http://www.iea.org">www.iea.org</a>
<b>The World Bank</b>	2019	-	<a href="http://www.worldbank.org">www.worldbank.org</a>

Table 1. The gathered data for the empirical analysis of the thesis.



The data have also been searched from bibliographic publications of the main library of University of Helsinki for this research. The basic idea is being discovering overviews and related research reports from these publications. Other suitable sources have been searched from the online database of the University of Oulu, for instance with the following keywords;

- Sustainability
- Sustainable development
- Oil and gas industry
- Fossil fuels
- Energy transition
- Carbon emissions
- Corporate social responsibility
- CSR in oil and gas industry
- Multi-level perspective theory
- Socio-technical approach
- Corporate image
- Climate change

With this compiled data, it is possible to observe and analyze the research problem in the empirical analysis. The main results of the research are divided into three sections according to the main research question and two supplementary questions. First, the supplementary questions will be answered, followed by the answer to the actual research question.

## **4 THE EMPIRICAL ANALYSIS OF THE ENERGY TRANSITION**

This chapter will investigate the research findings that emerge from the gathered data. Both multi-level perspective theory and corporate social responsibility perspectives on the findings are clearly demonstrated and the connections between the findings are analyzed to serve a basis for conclusions and discussion in the following chapter. The research findings will be examined under the two themes stated in the previous chapter. First, a comprehensive overview of the case company will be given in order to provide a review of the research topic to consider it from the general perspective.

### **4.1 Royal Dutch Shell as a multinational corporation**

Royal Dutch Shell plc (Shell) is a multinational energy company with the expertise in the production, refining, and marketing of oil and natural gas. In addition, its core competence is the exploration of novel energy sources and manufacturing and marketing of chemicals. Shell is one of the largest independent energy companies in the world in terms of the production, operating cash flow and the market capitalization. In 2017, Shell has produced over 3000 barrels of oil equivalent on average per day, traded more than eight million barrels of the physical crude oil on an average day, sold approximately 60 million tonnes of the liquefied natural gas (LNG), and also served over 30 million customers daily at their retail sites (Shell, Sustainability report, 2017).

Shell's business strategy focuses on creating investment possibilities for shareholders, while the growing population and the living standards increase the demand the growth of oil and gas. In February 2016, Shell also finished with the acquisition of British oil company (BG) by adding its activities in LNG worldwide, and also deep-water oil and gas production in Brazil. Today, Shell has four strategic goals: (1) Create a comprehensive investment case worldwide, (2) Reducing the carbon intensity as part of the energy transition, (3) Maintain the position of the leadership in the oil gas industry and have the largest value share among competitors, and (4) Create a shared value by working and influencing with the communities, the countries and the global organizations (Shell, Sustainability report, 2016).

As understood previously, Shell is a multinational corporation and according to Shell's website (2018) its business activities are divided into three sectors; (1) Upstream, (2) Integrated gas, and (3) Downstream. These activities are introduced in this thesis, since it will ease the understanding of the strategic activities of Shell in the following chapters. The upstream is responsible for Shell's common oil and gas business in the world, containing deep water, as well as the shale oil and the gas. It also explores the crude oil and the natural gas, and one of its main responsibilities is to develop major new projects. The integrated gas maintains Shell's manufacturing and distribution of liquefied natural gas (LNG) and gas-to-liquids products. It includes the natural gas exploration and extraction, and also the operation of the upstream and the midstream infrastructure. In addition, the integrated gas contains the new energy business, invests in low-carbon energy, such as biofuels, wind and solar power. Eventually, the downstream manages Shell's refining and marketing activities for oil products. These products are sold globally for domestic, industrial and transport use. It also includes the production and the sales of industrial chemicals (Shell, 2018).

## **4.2 The energy transition strategy of Royal Dutch Shell**

### **4.2.1 Towards a low-carbon future**

Energy is vital to the global economy always from fuels to fertilisers, and manufacturing to transportation, and it also enables the lifestyles that people desire. However, only 20 percent of the global population lives in Organization for Economic Co-operation and Development (OECD) countries, but utilizes 40 percent of the world's energy. According to the Shell's Sustainability report (2016) the world's primary energy demand is expected to increase by 30 percent between 2015 and 2040 due to the growing population and increasing living standards, and at the same time there is a critical need to consider environmental concerns, from local pollution to the global climate change. Today, the primary energy mix consists of oil and gas by 80 percent, whereas the coal provides 30 percent (Shell, Sustainability report, 2016). The rest are representing the alternative energy sources, for instance hydropower, biofuels, solar, wind and nuclear power. The energy transition will need significant efforts to boost energy efficiency, therefore a transformation of the global economy is strongly required, especially in the transport, power, building and the industry sectors (Shell, Sustainability report, 2017). The

application of alternative energy sources makes a significant contribution to the climate change. Hence, the renewable energy research has increased and gained growing attention from scholars (Chang et al., 2017).

As earlier was mentioned, the major challenge today is to understand how to provide more energy while significantly reducing carbon dioxide emissions. One of the greatest international strategic efforts for the carbon dioxide mitigation is the Paris Agreement. It is an agreement that the United Nations Framework Convention on Climate Change (UNFCCC) has created to reduce greenhouse-gas-emissions (GHG). The main focus of the Paris Agreement is to strengthen the global response to the climate change challenge by keeping a global temperature rise below two degrees Celsius in this century. In addition, the agreement aims to increase the ability of the parties to consider the impacts of climate change, and also creating their finance flows consistent with a low GHG emissions and the climate-resilient pathway (The United Nations Framework Convention on Climate Change, 2019).

The world's population is increasing rapidly, it is around 7,5 billion today, and yet, it has predicted to be nine to ten billion by the end of the century. Due to the increasing energy demand, the significant policy changes are required to keep the global warming to two degrees Celsius. These changes must be profound, different by location, capital-intensive, and will take for decades. The essential drivers for a low-carbon energy system are considered to be, for instance, effective policies and regulations, significant investments, technology development, and especially consumer awareness and mindset of the transition (Shell, Energy Transitions and Portfolio Resilience 2016). Due to the rapid growth of world's population, thus, increasing the energy demand, is it possible that the greater need for power generation has created a major justification for fossil fuel electricity generation, which on the other hand has created disadvantage for greater use of solar and wind energy?

The energy transition will require a combination of hydrocarbons and the renewable energy sources to meet the energy needs, and it also requires great investments industrial, civic and residential infrastructure. As earlier mentioned, oil, gas and coal consider over 80 percent of the primary energy supply world-wide, and the global network of fossil fuels has been developed over 150 years. To bring up the scale of the climate challenge, it would take the replacement of 263 coal-fired power plants with the zero-carbon sources of energy

to avoid the growth of emissions just one gigatonne per year of carbon dioxide. This is the equivalent of emissions from two-thirds all the coal-based energy sources in the United States of America (Shell, Energy Transitions and Portfolio Resilience 2016). According to these facts, is it even realistic to achieve the global temperature rise goal in the coming decades? Apparently not, due to the attitude of people towards the climate change.

The renewable energy sources and the nuclear power comprise only on four percent of the primary energy supply, and the electricity is just 18 percent of the final energy consumption. Over 90 percent of transport is fuelled by oil and it is also the basis for many synthetic materials and chemicals, however, the natural gas is able to combine with intermittent solar and wind power to provide a low-carbon electricity grid (Shell, Energy Transitions and Portfolio Resilience, 2017). However, according to the International Energy Agency (IEA) (2019) and Shell's Energy Transitions and Portfolio Resilience report (2016), oil and gas will remain as essential energy sources in the global economy for the coming decades. Today, oil and gas serve over 50 percent of the world's primary energy, and in propotion to IEA (2019) scenario, it is expected still to provide about 50 percent of the primary energy in 2030, however, more gas and less oil in the mix than today.

One of the significant factors should be emphasized, the largest 20 private-sector oil organizations are responsible less than two percent of the carbon dioxide emissions (Shell, Energy Transitions and Portfolio Resilience, 2016), thus, Shell's GHG emissions is a fraction of the global totals. Therefore in total, Shell operating alone, or the actions of any company, is not able to change the pathway in the global energy sector by themselves. Perhaps one of the major challenges with a low-carbon future so far is that the oil producing countries are dominating the oil and gas business, yet these countries are generally full of corruption and not politically aware. Secondly, there are other challenges that sets difficulties for the alternative energy mix, for instance, the most important materials and services can be only produced by oil and gas, and no alternative energy sources have yet been invented.

#### 4.2.2 Shell's strategic operations of the energy transition process

It will be vital to create a sustainable energy system, especially in power generation, by using new energy sources. After the acquisition of BG on 2016, the natural gas compensates around half of Shell's oil and gas production today. Modern gas-fired power plants emit almost half of the carbon dioxide of the modern coal plants while extracting the fuel for the electricity generation. According to the Shell's Energy Transition and Portfolio Resilience (2016) for a long-term basis, Shell is actively exploring alternative new energy business opportunities where the commercial value is clear. It has invested in various projects in the past, and yet are continuing to invest in new opportunities at scale in the future.

Shell's capital employed in the alternative energy opportunities is 1.7 billion dollars and it is also investing 200 million dollars annually to explore and develop these new activities. Their main focus will be on areas that work with their core businesses, for instance, the location and the facilitation of the existing infrastructure. These energy opportunities Shell consider to be a key source of competitive advantage compared to the specialist actors in the renewable energy industry. The new energy opportunities cover numerous important themes, for instance new fuels for mobility, such as biofuels and hydrogen, integrated energy solutions, for example wind and solar energy. The new energy sources also consider connecting customer with new energy business models that are enabled by digitalization (Shell, Energy Transitions and Portfolio Resilience 2016).

While analyzing Shell's Sustainability reports, it is noticeable from between the lines that it is primarily investing in novel technologies and innovations with clear commercial value. Generally, companies mainly focus on the success and the economic power, rarely they practice charity, except non-profit organizations. Thus, the significance of the renewable energy sources must have rapid growth in order to increase a low-carbon production. The growth of the renewable energy sources would contribute the energy transition, however, it will only be possible through the external pressure, such as new regulations, laws, and global policies.

As the figure four describes below, Shell has invested in numerous operations to contribute the energy transition. These operation are the following: (1) Investing in oil and gas

business to meet the growing energy demand, (2) Increasing the natural gas sector as a less pollute opportunity, (3) Advocating the CCS technology and nature-based solutions, (4) Participating the government-led carbon-pricing mechanisms, (5) Managing the GHG emission in the internal operations, and (5) Investing in a profitable new alternative energy business. The first three operations are the primary business activities that Shell has invested in, therefore, they are considered more specifically below. However, Shell is globally one of the companies that are participating with the goverment-led carbon-pricing mechanism. According to the World Bank (2019), the carbon pricing -mechanism is an instrument that enables to capture the external costs of the GHG emissions from the parties who are causing them. Shell is also continually exploring new opportunities to manage the GHG emissions in their internal activities by exploiting own innovations in their operations.

Through research and development, Shell explores new opportunities for the profitable new energy business. It has a joint venture in Brazil that produces biofuel by extracting ethanol from sugar cane, and according to the Shell's website (2018), it has also planned to commercialize the new technology to create competitive low-carbon biofuels from sustainable non-food sources. Shell is also ingreasingly investing to hydrogen as a transport fuel. It is linked to the downstream retail infrastructure, the distribution and the supply capabilities, and the natural gas business.

The main hydrogen operations are located in Germany, however, it is also investing globally, including the United Kingdom and the United States of America. The wind business has also been the greatest renewable energy source for Shell. It has the onshore wind business in the USA and also participating with eight other global onshore wind projects. Shell also maintains a 50 percent interest in the NoordZee Wind offshore project in the Netherlands, and they are continually considering further opportunities in the wind business where it can broader the experience and the capabilities to greater use of the renewable energy. Finally, Shell is exploring new opportunities to deploy solar technologies to lower the carbon intensity of their operations. The solar business is the least area of renewables in Shell, however, they have minority investment in Glasspoint. It is an organization that has utilized the solar team technology in thermal enhanced oil recovery operations (Shell, Energy Transitions and Portfolio Resilience 2016).



Figure 4. The energy transition strategy of Shell (Adopted from Shell, Energy Transitions and Portfolio Resilience, 2017, p. 19).

#### 4.2.3 Natural gas as part of the transition process

Natural gas is the cleanest-burning hydrocarbon and it considers half of the total production of Shell's oil and gas business. It is also the main focus of Shell's energy strategy to provide cleaner energy in the future. It has been stated that natural gas is a critical factor of the transition to a lower-carbon future. Instead of using higher carbon fuels, i.e. coal and diesel, natural gas enables to meet the increasing energy demand while lowering the GHG emissions and air pollution. It is also one of the few energy sources that can be utilize across all areas of the global economy (Shell, Energy Transitions and Portfolio Resilience 2016). Natural gas is used to generate electricity, as a fuel for heavy-duty transport, shipping and rail, and as well it provides heat for industrial processes as for consumers private use. According to the International Energy Agency Data (2019), natural gas emits between 45 percent and 55 percent lower GHG emissions than burning coal to



generate electricity. Gas can also be an intermittent partner with the renewable energy, for instance it can be mixed with solar and wind power to maintain a steady supply of electricity (Shell, Energy Transitions and Portfolio Resilience, 2017).

Shell produces and explores for natural gas both, onshore and offshore, and it is one of the global leading suppliers of LNG. LNG emits half of the carbon dioxide even after liquefying, transporting and changing it back into natural gas. Shell is also investigating continually the new ways of extending the usage of LNG beyond power generation to the transport (Shell, Energy Transitions and Portfolio Resilience, 2017). One of the main focus for Shell is exploring opportunities to increase the use of LNG in their internal operations, for instance, since 2015 two offshore supply vessels of their deep-water operations have been running on LNG (Shell, Energy Transitions and Portfolio Resilience 2016).

According to the Shell's Energy Transitions and portfolio Resilience (2017), In 2017, Shell expanded its natural gas leadership position by acquiring and creating new business operations globally. It acquired Chevron's subsidiary in Trinidad and Tobago, thus, it strengthened Shell's position on domestic market and also in the Atlantic LNG area. Shell has also expanded its operation to Niger Delta region where it started the new production at Gbaran-Ubie Phase two, wherein Shell has 30 percent interest. Also as a result of the BG acquisition in 2016, Shell penetrated in Australia obtaining 100 percent interest in the common facilities on the LNG plant. These operations facilitate the production of natural gas from coal seams and liquefies it as LNG through two different processing units, the LNG trains. The latest investment of the LNG project was creating the Charlie project in Australia on August 2017, therefore Shell was able to supply more natural gas and also provide over 1 500 jobs in Queensland (Shell, Energy Transitions and Portfolio Resilience, 2017).

#### 4.2.4 The carbon capture and storage technology as a new innovation in the energy transition process

Shell is a market leader in the carbon capture and storage (CCS) technology and they believe that the CCS is the only available technology that enables the significant reduction of carbon dioxide emissions from the industrial sectors today. The basis of the CCS project is to use a combination of various technologies to capture and store the carbon dioxide

deep underground by preventing its release into the atmosphere. Shell started their first official CCS project in Canada 2014. The Quest CCS project has captured and stored carbon dioxide from a plant (the Scotford Upgrader) where bitumen is transformed into synthetic crude oil and it has succeeded to capture and stored more than two million tonnes of carbon dioxide in the recent years. Today, Shell is also cooperating with Norway's continental shelf and obtained financing from the Oil and Gas Climate Initiative (OGCI) Climate Investment to lower the carbon footprint by carbon capture utilization and storage technology (Shell, Energy Transitions and Portfolio Resilience, 2017).

According to the International Energy Agency (2019), the CCS technology is expected to play a important role in the global climate response, and it is claimed that the CCS projects will be essential for achieving the goal of limiting the global warming to below two degrees Celsius. The carbon capture technology was developed by a subsidiary of Shell, Shell Canslov. Today at technology Centre Mongstad, Shell together with the Norwegian government and few other parties are cooperation with the research and development to reduce the cost of the CCS technology. They have committed to participate with the cooperation at least until 2020 (Shell, Energy Transitions and Portfolio Resilience, 2017). However, reaching the goal of limiting the global warming to below two degrees Celsius, will require 6000 million tonnes of carbon dioxide to be stored by 2050. According to the Shell Energy Transitions and Porfolio Resilience, 2017, the capacity of global CCS should have been 100 times bigger by the end of 2017. This means that the development of the transition towards low-carbon future is already in arrears, and no certain party is solely responsible for it. This creates a major concern for the whole transition, is it even possible to achieved the set goals before it is too late.

### **4.3 The implementation of the multi-level perspective theory in Shell's strategy**

#### **4.3.1 Applying the multi-level perspective theory in Shell's strategic operations**

The GHG emissions have rapidly increased, therefore the reduction of needed amount of carbon dioxide emissions can be only executed by deep-structural changes in the socio-technical transitions (Geels, 2012). Shell is a relatively a small player in the energy field, therefore it is not able to influence the energy mix alone. The top ten national, Organization of the Petroleum Exporting Countries (OPEC) produce around a third of

global oil and gas supply (Shell, 2018). The socio-technical approach can be applied in various contexts, depends on the aspect, however, the perspective in this thesis considers the energy transition strategy of Shell. Even if Shell's capacity to innovate and create long-term strategic views contribute to the energy transition process, the participation by other parties is also required.

The specific transition management is vital in the energy transition process, and a key concept of the transition management is the multi-level perspective theory. Since interactions between various levels are key to understand different changes in the societal systems (Geels, 2002), moving towards a low-carbon energy system includes that the governments, organizations, industries and the society will have a significant roles in the process. Consumers, as well as governments and organizations, will need to make substantial changes in their consumer patterns and mindsets, whereas the energy supplier, like Shell, will also need to implement the energy transition in their strategy planning (Scrase & Smith, 2009).

The multi-level perspective theory is applied in Shell's strategic portfolio in this thesis. The theory comprises three different levels that must be defined in this context: First, the macro-level, in other words the long-term societal framework, constructs the landscape. Since the landscape is a major structure that is beyond the control of individual actors (Geels, 2012), it considers the external factors of Shell, for instance, governments, industries, legislations and laws, societies, etc. The elements are possibly only factors that can cause deep-structural changes on the landscape. These elements can be, for instance the infrastructure, cultures, technology, consumers, values and attitudes, etc. and yet, they are also beyond the control of one actor. Major changes in these elements considered to be the socio-technical transitions that affects directly on the landscape. Secondly, the system level and the niche level are considered to be Shell's internal operations, since innovations occur through the research and development (R&D) sector. The primary focus of the niche level is experimental projects, pilot projects and demonstration projects with new technologies. Where as the system level refers to existing systems within Shell, in other words, already globally known energy sources, for instance oil and gas (Geels & Raven, 2007).

The dynamics of three different multi-perspective levels are significant. First, the novelties occur in Shell's R&D sector in the niche level. If these novelties are observed to be great, there is a possibility that the novelties are deployed in the system level to replacing some other innovation. The novelties in the niche level are starting to build a social network to create basis for the possible further operations by allowing users, policy-makers and special interest groups to give feedback to the R&D sector. Also after developing the projects, the space is provided for learning processes with regard to the technical design, user preferences, regulations and infrastructure requirements in the beginning of the project. The third phase is to implement a novelty into the system level, when it becomes part of the strategic portfolio (Geels & Raven, 2007). These novelties are continuously interacting with the system level. Through the acquisition of the BG, Shell obtained the market leader position in the gas business. While gas is gradually replacing oil, or at least being considered as a good energy source as oil, in Shell's long-term strategy plan, it has an incumbent position in the system level. It has also gained an impact on the landscape by being the less polluting energy source than oil (Shell, 2018).

Expectations are playing a key role in the niche level by attracting attention and resources from the social network for novel projects. These expectations provide direction to learning processes and further operations (Geels & Raven, 2007), for instance, Shell has started to invest more to the CCS technology since they have gotten positive feedback from other parties. The network is willing to invest resources in novel projects if they have gained a positive expectation of a new idea or technology (Geels & Raven, 2007), and the CCS project is a clear example of a new technology. While other parties are interested in financing and developing the CCS project, it allows Shell to expand it globally (Shell, Energy Transitions and Portfolio Resilience, 2017).

The multi-level perspective theory has been applied in this thesis by considering only one factor at a time. The reality of emergence of new technologies is more complex in a wider environment. In reality, the environment consists of various technological niches, incumbent socio-technical systems within the company, and an external socio-technical landscape (Geels & Raven, 2007). The socio-technical landscape interacts with the elements, in other words, the climate change, consumer patterns and values affect continuously on the landscape and on the contrary. This interaction reflects pressure to the internal company-specific system level that has a power to enforce companies to change their operations,

activities or even force to create new innovations (Geels, 2012). For instance, Shell confronts social and policy pressure of carbon dioxide emission reduction, and thus, this becomes a source of stress that causes actions in both, internal niche and system level. Also societal awareness of climate change creates a threat to the existing system, which generates social and policy pressure for carbon dioxide reduction in Shell's internal operations (Scrase & Smith, 2009). However, the multi-level perspective theory has been developed since it explains how these three different levels interact in the transition process from one socio-technical system to another (Rip & Kemp, 1998).

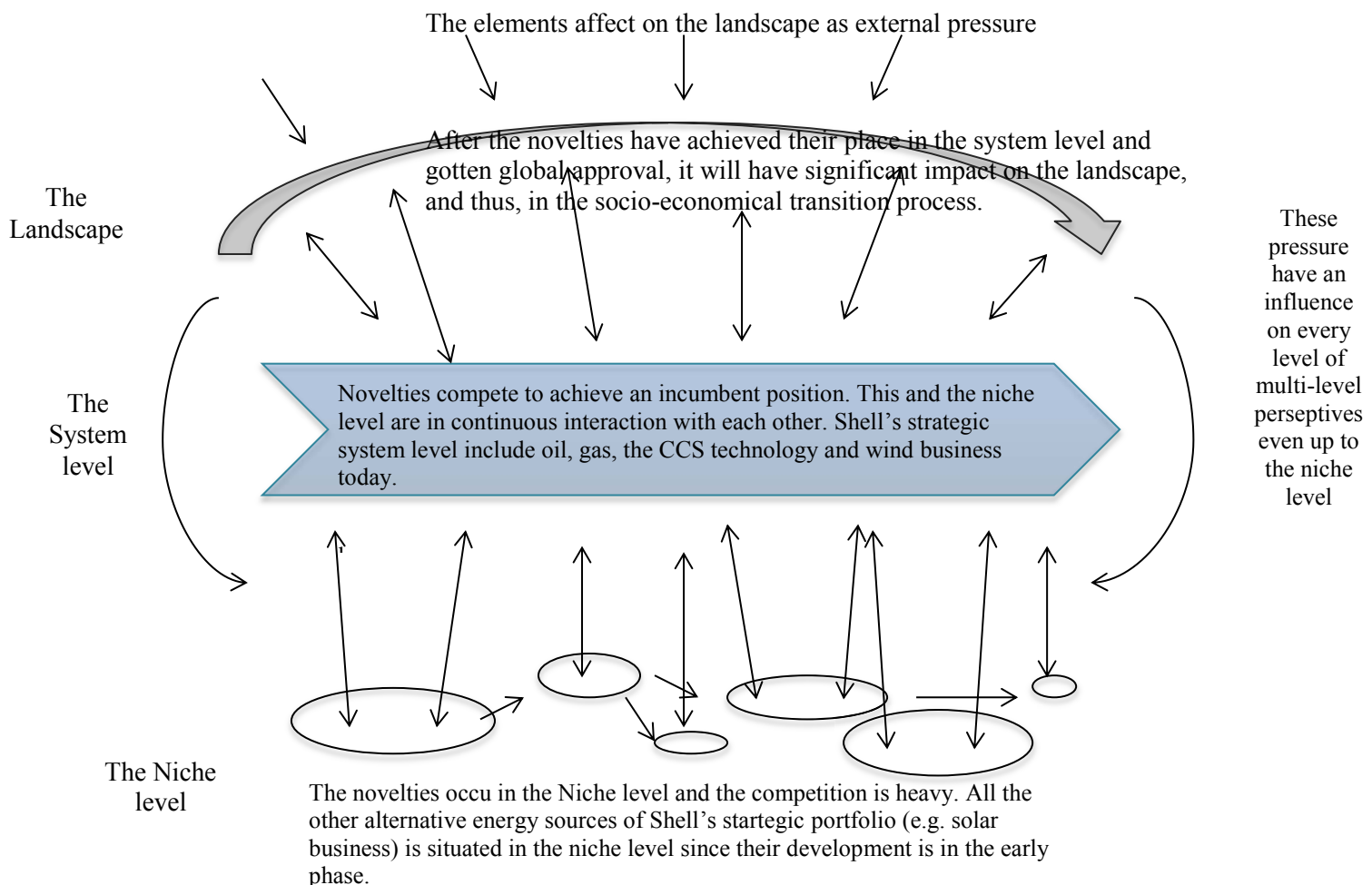


Figure 5: The dynamics of the multi-level perspectives applied with Shell

As the figure five describes, external and internal elements create the pressure to decrease emissions that creates the incremental repair for operations within the existing systems but also create new innovations and institutions (Scrase & Smith, 2009). For instance, the pricing carbon mechanism, climate policy and regulations, social awareness have influence on the landscape, which has a major impact on the Shell's strategic operations. This has created new opportunities, novelties, in the niche level that are presenting competitive solutions for the challenges that Shell receives from the external elements. The novelties then have to improve their niche performance and persuade other parties to move commitments from the existing niche level into the system level. Competing novelties pursue similar strategies, and with the appropriate support, it is possible to find a solution to a low carbon system from the multi-level dynamics (Scrase & Smith, 2009). Shell has gained positive outcome towards the CCS technology and it has achieved the incumbent position in the level system in the company. However, it is still on a early stage, and it does not yet have an global influence on the landscape. The wind business of Shell has also already reached a position in the internal system level, however, it is being continually developed to achieve the global success alongside with oil and gas (Shell, 2018).

There have been concerns about the external pressure at landscape level, considering if the pressure is enough to cause the actual transition in the organization's system and niche levels. However, according to the Annual report of Shell (2018) there are numerous different parties that are creating the pressure for change in oil and gas field. Shell is emphasizing the negative aspects of the excessive pressure from some groups and parties towards fossil fuels in its annual reporting. As Shell (2018, p. 16) states: "Some groups are pressuring certain investors to divest their investments in fossil fuel companies. If this were to continue, it could have a material adverse effect on the price of our securities and our ability to access equity capital markets ". All in all, this could result in lower revenue and, especially in the long run, potential impairment of certain operations and assets. Also The World Bank (2019) has also stated plans to end financing Shell's upstream oil and gas projects in 2019, and also other financial institutions might be limiting their exposure to certain oil and gas operations.

As previously has been described about the external pressure at the landscape level in this thesis, governments, regulators, organizations and individuals have filed lawsuits seeking to hold oil and gas companies being responsible for the costs of climate change. Shell

(2018) argues that the physical effects of climate change, for instance the temperature rise, fluctuations in water levels, and sea-level rise, will negatively impact on both, its operations and supply chains too. Shell is also confronting the operational pressure since if it is not able to find economically viable and also socially acceptable solutions for the GHG emission reduction, it will receive additional costs or financial penalties and also experience delayed or cancelled projects. However, the external pressure has forced Shell to set long-term goals to reduce GHG emission. According to the Shell (2018), it has set long-term goal ambitions to reduce the Net Carbon Footprint of its energy products, it is measured in grams of carbon dioxide equivalent per megajoule consumed. By the 2035, Shell is decreasing the footprint by 20 percent and by 2050 already by 50 percent. To operationalize this long-term goal, Shell considers specific targets for shorter-term periods, for instance a three-year period is already set in the strategy portfolio.

#### 4.3.2 The limitations of applying the multi-level perspective theory in practice

There are different challenges while applying the multi-level perspective theory (MLP) in practice since researchers have noticed significant gaps and biases within the MLP and transitions literatures (Lawhon & Murphy, 2011). As Shove & Walker (2007) state as well that there are too much talk of socio-technical concept, but almost no reference to consumers' lifestyles or to the patterns of demand, which implies that the focus of the multi-level perspective will lean largely in technological practices in the future. The lack of social aspect in the socio-technical transition approach decreases the energy transition, and thus, is considered as a lock-in mechanism in this context. The challenge of Shell's operations occurs since it has a supply-driven focus in the energy sector. The global demand is enormous in oil and gas industry, and due to this, the social aspect of the transition perspective decreases. Thus, the main focus remains rather in technological and economical processes than in the social aspect. The transition towards a low-carbon future would probably succeed better if organizations would utilize more pluralistic decision-making process, where visions are shared, considered and valued.

In the multi-level perspective theory, culture has been considered as an exogenous pressure at the landscape level, however, the public is generally neither homogenous nor passive, but rather has considerable potential for creativity and represents a range of interests and activities (Lawhon & Murphy, 2011). If analyzing only the external pressure that Shell

confronts from the top-down at the landscape level, it rather considers concrete parties, such as laws and regulations, the government policies and other organizations, than societal factors. Geels (2011) also argues that the niche level represents creativity through experimentation, however, generally the MLP theory is used to emphasize the role of technology consumers and users, rather than citizens or members of communities. As previously was noted from the Shell's Sustainability report (2016), it has various projects globally active in different host countries, however, it does not seem to consider people as part of the community, for instance in Niger Delta, but rather expect them to benefit more than suffer from the oil drillings there. This tendency considers the people solely as individual consumers and ignores their roles as members of community groups, parents, friends, employers, employees, voters.

The recent studies have already considered the critical insights between humans and the environment. It is significant to consider these insights on socio-transition approach, yet it will strengthen the decision-making process in transitions to achieve more better and sustainable outcomes (Lawhon & Murphy, 2011). Also many socio-technical transition researchers argue that there is a dilemma with different actors in the transition process. This means that there might be unequal power relations within organizations' decision-making processes. Therefore, it is significant to consider how unequal power relations within organizations' decision-making process affect on the transition.

In the transition process, the unequal power relations derive from a vision that contains or rules out various actors, such as social priorities or groups of people. For instance, potential solutions for a low-carbon future could be consist of nuclear energy or gas, but a vision of exclusively renewable energies might exclude these options. However in both cases, utilizing nuclear power or gas instead of using carbon dioxide would benefit more or less comparing the 'better renewable solution' rather than execute nothing or trying to find out the perfect solution which could take years in turn. Those people or groups who have the greater power and influence within the context of the socio-technical landscape are more expected to have their interests preferred unless certain factors are limiting their power relations (Lawhon & Murphy 2011).

Shell is a vast multinational corporation that has divided in various business sectors. In order to understand the decision-making process within Shell, there must be needed



information from inside the company. Thus, the analysis cannot be conducted due to the lack of the inside data. However, according to the Annual report of Shell (2017), it emphasizes that Shell's strategy is based on the outlook for the energy sector and it seeks new opportunities for its operation through the undergoing transition. Due to the rising standard of living and the growing population is increasing the energy demand, including oil and gas, in the future. However, technology changes, thus, companies need to confront the challenges of climate change, which means a transition towards a lower-carbon future and multi-source energy system. As in Shell 's Annual report (2017, p.8) states that " We recognize that the pace and specific path forward is uncertain and so requires agile decision making ". While analyzing Shell's annual reporting, the writer assumes that Shell must have unequal power relations and different visions between its decision-making processes which might have an impact on the chosen pathways.

#### 4.3.3 The lock-in mechanisms in the energy transition process

While analyzing the energy transition process towards more renewable energy sources, the role of lock-in mechanisms should be taken into account. The lock-in mechanism has an significant impact on the extent of the transition process, since existing sources might be locked-in at the system level. The energy sources are generally incumbent in the system level, thus, not easy to change (Elzen et al., 2004). The academic research has studied the incidence of these lock-in mechanisms in different contexts, for instance in technological transition, social transition, environmental transition, however, the energy transition aspect is merely considered in this thesis.

The lock-in mechanism considers a positive feedback or increasing returns of an implemented technology (Arthur, 1994). These already incumbent technologies have gained an advantage over the new alternative sources since they are globally known (Klitkou et al., 2015). Shell has an icumbent position for gas and oil in the energy portfolio, therefore, the alternative energy sources, the novelties, are competing to achieve the permanent position among other technologies. The previous research refer that multiple lock-in mechanisms is playing an important role in explaining path dependencies (Klitkou et al., 2015), and the studies reveal that there are defined nine different lock-in mechanisms, however, there are applied only few mechanisms in this thesis to bring perspective to the energy transition of Shell. The four lock-in mechanisms in this context

are the follows; (1) Collective action, (2) Economies of Scale, (3) Differentiation of power and institutions, and (4) Network externalities.

Economies of scale can be defined well, for instance through energy production. It emerges when sunk costs occur from the previous investments in production capacity, and yet expands over an increasing production volume in the socio-technical system (Klitkou et al., 2015). It can be explained by increasing returns as fixed costs, for instance through the acquisition of BG, Shell gained economies of scale in natural gas business since the infrastructure became more efficient by getting major resources in the system level (Shell, 2018). However, the indolence of this infrastructure locks the system into a chosen direction, therefore the transition can be extremely difficult. Also Arthur (1994) states that all technologies have not gained increasing returns regarding economies of scale, for instance hydroelectric power business might become more expensive as the size of the dams increases. Collective action as a lock-in mechanism refers to the emergence and subsequent reproduction of societal norms, consumers patterns and attitudes, customs, formal regulations etc. (Klitkou et al., 2015). Consumption patterns have a great importance in the energy transition. For instance, while consumer awareness of sustainability increases, Shell also needs to reconsider and create alternative energy opportunities next to the incumbent sources in the portfolio. However, as long as consumers are not aware of the options, they settle in the customary habits, which is oil and gas in this case, and are not able to demand alternative opportunities.

Differentiation of power and institutions are also considered as a lock-in mechanism since asymmetries of power are reflected as strong political actors. These actors are able to determinate general rules on other elements and force changes to other parties to enhance own power (Foxon, 2002). The carbon pricing mechanism that Shell is also participating is a great example of this lock-in mechanism, since institutions and organizations create symbiotic relationships as a response to the incentives, and favour generally the incremental instead of radical changes (Klitkou et al., 2015). In addition, the network is playing a key role in the energy transition process since it can significantly reduce transition costs, and thereby facilitate the transition process (Snieska et al., 2007). Network externalities can encourage the adoption of a new technology. Thus in Shell's case, the fossil transport fuel infrastructure is well developed globally and these infrastructure systems are not national, therefore, the alternative energy sources compete with the fossil

fuels cross borders. Hence, the use of alternative energy sources might cause challenges geographically in different cultural backgrounds.

The recent studies refer that different path dependencies are able to be reinforced by the lock-in mechanisms (Klitkou et al., 2015). Hence, the characteristics of existing organizational systems establish the preconditions of the development of new transition pathways. The external pressure in the socio-technical landscape affects on the incumbent organizational system level that is no longer just fossil fuel-based, in Shell's case, it has also included mature niches, the CCS technology and wind power business, in the system level and it brings new pathways into Shell's energy portfolio.

Klitkou et al. (2015) argue that the empirical studies have underlined the significance of the lock-in mechanisms individually. It is possible to understand the transition processes, that are highly complex, through compounded analytical framework of lock-in mechanisms. Lock-in mechanisms are also able to explain complex transport systems since they might be in significant role of explaining path dependencies (Klitkou, 2015). Hence, is it possible that the greater need for power generation has created a major justification for fossil fuel electricity generation, which on the other hand has created a disadvantage for greater use of solar and wind energy to displace oil and gas generation? If so, this implies that lock-in mechanisms might enable the favouring of the old fossil-based system rather than well-established renewable energy niches or new pathways.

It is also possible to consider the maximization of the economic position as a lock-in mechanism. According to the Annual report of Shell (2017), its growth priorities for the following years are the deep water upstream and chemicals in downstream and also cash engines are expected to serve strong and resilient returns and free cash flows. Shell's cash engines are conventional oil and gas in upstream, oil products in downstream and integrated gas and it continues to invest in these growth opportunities. However, the usage of old and well-established operations might decrease the pace of the transition, and in the worst case, cause a loss of a market position due to the lack on innovations.

#### **4.4 The role of social corporate responsibility in Shell's strategy**

##### **4.4.1 Corporate social responsibility in the history of Shell**

The utilization of the renewable energy sources creates a significant contribution to the sustainability of the planet. Hence, the globe should be shifting from the old paradigm of carbon-intensive energy towards more alternative energy, however, the alternative energy paradigm should consider not only environmental aspects, but also social and political-related challenges. A energy sector have not successfully performed on mitigating negative impacts in the operated host countries (Ralph & Hancock, 2018), especially Shell has poor environmental and social track records in the past, which has stressed the importance of a well-managed corporate social responsibility.

Nigeria, particularly the Niger Delta, has found to have enormous reserves of oil in the past, therefore in the 1950s, Shell started to explore for oil in Nigeria. Its early extraction, Nigeria was its first years as an independent country and had difficulties to operate independently. Despite the governmental challenges, Shell began its oil production in Nigeria, and therefore, an extensive environmental contamination was occurred multiple times due to the lack of environmental, health and safety regulation of Nigerian government (Spence, 2011). Shell paid royalties to the Nigerian state, however, the money ended up into the corrupted government officials instead of the people in Nigeria. As Spence (2011) states that by the early 1980s, people were exploited by large oil companies, such as Shell, and the Nigerian government. Eventually, Shell began to recognize the reputational challenge and started to enhance its operations and actions in Nigeria by undertaking social investments and striving concerted efforts to improve relationships with all of its significant stakeholders. However by that time, the reputational damage has already occurred. Shell began to implement corporate social responsibility (CSR) into their strategy, despite its actions, protests against Shell became stronger and more organized in the 1990s and early 2000s (Spence, 2011).

Shell has enhanced its responsibility in the operated host countries in the early 2000s by being involved with building schools, roads, clinics and providing drinkable water. These areas are generally the responsibility of the government, however, Shell felt it helpful to assist the community with its inadequacies. It has also gotten development partners to

improve in addressing community needs, especially in the Niger Delta area. It has created specific development programs that include 27 health clinics to enhance the wellbeing of the people. Shell also support the education of young children with over 17 000 children on Shell scholarships (Shell annual report 2004). However, it has been speculated that these contributions are made as a conciliation or compensation due to the violation of human rights and environmental pollution that have abundantly occurred in the past.

In 2005, Shell has already been aware of the impacts of climate change and it was noted in the annual reporting. Also during that time, Shell has been accused of the major environmental and human violations, for instance in Niger Delta. However, Shell's Annual report (2005, p.17) states: "The Group's operations and earnings are subject to risks related to the impact of climate change. Concern about climate change is leading to government action to manage emissions and societal challenge to future oil and gas developments. As such, there is a delivery risk to future projects and compliance risk for existing facilities which cannot demonstrate adequate emissions management. Realization of these risks could have an adverse impact on the Group's operational performance and financial position". According to the statement of the Annual report of Shell (2005), Shell was more concerned about the fact how the government policies and regulations would affect on its financial position. Based on that, all the previous social investments in Niger Delta in the early 2000s must be a publicity stunt that Shell could continue its operations in order to retain the financial position in Nigeria.

#### 4.4.2 Towards a low-carbon future through corporate social responsibility

Organizations, especially in an energy sector, have been controversial due to the range of negative impacts, including labor practices, environmental degradation, human rights violations and corruption (Ralph & Hancock, 2018), therefore the role of corporate social responsibility is emphasized, or at least should be, within organizations. Globalization has caused the propagation of power to markets, transnational corporations (TNCs), and civil society, have created a paradigm shift in responsibilities from business to society (Ralph & Hancock, 2018). For instance, CSR must be stressed in Shell's strategy-planning process, hence, conflicts can be prevented or managed better.

While considering the oil and gas industry, the role of CSR is playing a key role since it is a leading sector of business that has to continuously enhance and improve the engagement of CSR practices (Ralph & Hancock, 2018). As the figure 5 clarifies below, the focus areas of Shell's human rights are the follows: (1) Labour rights, (2) Communities, (3) Supply chains, and (4) Security. Shell considers human rights extremely significant today, and what comes to the labour rights, Shell respects the rights of employees and suppliers by working in alignment with international agreements and guidelines. Also Shell is focusing to work with the communities to make them understand their priorities and concerns. In addition, they are stressing the significance of the impacts on communities since improving responsibility is playing a key role in the strategy-planning process today. Thirdly, Shell's priority is to guarantee the safety of the facilities and employees, while taking into account the human rights and security of local communities. Finally, Shell has the Supplier Principles that considers the human rights of contractors and suppliers. The principles consist of Shell's requirements for contractors and suppliers integrity, health and safety, labour and human rights, and social performance. Due to the location and the nature of the services Shell produces, the specific areas of their supply chain might contain a higher risk in labour rights. However, Shell utilizes set of criteria to identify possible risks, hereby try to minimize risks and maximize the security (Shell sustainability report, 2017).



Figure 6. Shell's focus areas of human rights (Adopted from Shell Sustainability report, 2017).

Due to the nature of the oil and gas business, Shell needs to take into account every operations from the social, economic, political, legal, technological and environmental aspects (Frynas, 2005). Shell has a clear standards and reporting requirements for the health, safety, security, environment and social performance (HSSE&SP) data. The data is being gathered annually, and yet Shell's facilities and operations are required to comply with these standards. Due to the importance of CSR practices within the oil and gas industry, Shell reports annually its performance data from these practices (Shell Sustainability report, 2018). However, reporting emphasizes more or less only the positive improvements.

While considering the nature of operations in an energy sector, the potential threats and risks on the environment, human rights and local communities are substantial. The CSR practices consider possible environmental damages while processing oil, such as exploration, production, transportation, and refining. Hence, one of the most significant challenges of oil production are pipeline leakages, the GHG emissions and wastewater pollution. According to the Shell Sustainability report (2017), Shell avoids impacts on biodiversity and ecosystem services through their wastewater operations by seeking opportunities to make a positive contributions to biodiversity conservation in the communities Shell operates in and cooperating with scientific and conservation organisations around the world. For instance, Shell has a Stones deep-water project in the Gulf of Mexico, in which they share deep-water data with marine scientists. Shell also emphasizes that seven of their downstream manufacturing sites are recycling or reusing its waste more than 50 percent in 2017, and four sites of the them are reusing its waste over 80 % (Shell Sustainability report, 2018). However, the oil is generally originated in environmentally high risks areas and oil production might neglect labour rights. This usually sets oil and gas companies a contradictory from the CSR perspective.

The peculiarity of CSR in relation to an energy sector is the fact that the organizations face the greatest pressure from people, governments and societies and need to confront people's constant demand for CSR since they serve continuous and strong global demands for their product (Kirat, 2015). However, energy companies are generally expected to self-regulate, which oblige them to contribute more to protect the society against potential risks than merely obey the laws. Yet, it is known that technical challenges are major problem in the

industry and accidents occur frequently (Kirat, 2015). As it turns out in Shell's Responsibility report (2018), even Shell are not able to prevent accidents to happen, albeit they have zero tolerance for accidents, especially accidents that impinge on the employees. Due to the high risks of CSR practices, people require the goodwill from the oil and gas companies. Even if Shell is taking initiatives of investing biodiversity or participating in the carbon pricing mechanism, does it give an excuse to make unethical decisions or apply old procedures in their business?

While applying the contents of CSR principles in an energy sector, the challenges are known to occur. Organizations are more often taking into account micro-level rather than macro-level environment. For instance, some energy companies have excluded the political and economic impacts of their operations (Kirat, 2015). Shell states that they are always applying local laws and regulations, and in addition, abide by international standards as a benchmark, which has set out by International Finance Corporation. However, the challenge is that numerous oil-producing developing countries are economic underdeveloped and political mismanaged, which might expose to corruption and exploitation (Stevens, 2003). Also developing countries generally have less strict laws and regulation than Western countries, therefore, multinational corporations might exploit the advantage in these circumstances. As even Frynas (2005) argues that the resource curse is a phenomenon whereof various oil-producing countries have suffered from.

Considering the history of oil and gas industry, even just Shell's history, there has been a significant growth in corporate ethics and social responsibility obligations that enlightens the major shift in how Shell invests and engages more in social developments and the local communities today than they used to (Kirat, 2015). Shell is taking more seriously the impacts of CSR in their business, therefore, they have been assessing and managing the potential social impact of the operations as part of the integrated environmental, social and health impact assessments. In addition to the fact that major multinational corporations are increasingly embracing the significance of corporate social responsibility in regards with the environment by creating new renewable energy sources and limiting the impacts of the GHG emissions, emphasizes further the role of CSR in the oil and gas industry (Kirat, 2015).

Even if Shell is focused to guarantee the safety of its employees and staff, and maximizing its economic power, it is also forced to consider the societal aspects of its operations as



well. This has raised the GHG emission reduction for one of the key operations within Shell. As Shell has stated in the Annual report (2018, p.16): "We expect that a growing share of our GHG emissions will be subject to regulation, resulting in increased compliance costs and operational restrictions. If our GHG emissions rise alongside our ambitions to increase the scale of our business, our regulatory burden will increase proportionally". Shell is expecting that the GHG regulation, as well as the emission reduction, will continue to consider more on suppressing the usage of oil and gas through taxes and fees (Annual report of Shell, 2018). However, this is in contradiction with the growing population and the consequent increase in energy demand, especially if one takes into account that the most of the energy is still generated from oil and gas.

#### 4.4.3 The utilization of corporate social responsibility to improve the corporate image

As previously was mentioned, organizations, especially the energy companies, are globally driven to engage in social investments (Kirat, 2015). The recent research areas of corporate social responsibility field have been studied the effect of CSR on corporate economic performance, yet it suggests that there is a clear relationship between the corporate social performance and the economic performance. It has also been suggested that a responsible organization benefits from its improved reputation among consumers and the business community, therefore it might be able to improve its ability to attract capital (Chang et al., 2017). Hence, is it possible that oil and gas organizations are compensating their actions through well-managed corporate social responsibility?

Shell began to report voluntarily its environmental, safety and social performance with the first Shell Report in 1997, during the crisis of Niger Delta. The voluntary reporting of Shell's performance is enhancing transparency of its operations and increasing the better public image, however, they are mainly reporting of the positive improvements. Generally, while taking the initiatives of CSR, like Shell has taken, the fundamental reason might be satisfying stakeholder, the non-governmental organizations, consumers and the societies. These initiatives emphasize social welfare rather than economic power, which are playing significant roles in the host countries and for the direct consumers, who generally pay more attention for the local operational performance rather than global comprehensive actions (Lantos, 2001). As previously mentioned, Shell has contributing the local communities by various initiatives, such as different development programs, children's better education,

enhancing biodiversity in risks areas etc. Thus, Shell is practicing CSR for the goodwill of the society as a whole, but also performing CSR practices to gain the competitive advantage and receive a positive reputation and external perception (Kirat, 2015).

However, some of these initiatives organizations are performing might not be successful, especially when the goal is to accomplish the economic and business objectives rather than the social welfare. For instance, the contribution to these initiatives might be useful for multinational corporations, if they are allowed to continue their operations in the local communities. Some of these initiatives and projects might also be used as a cover to enhance the company's public image, hence, achieve a good public relations and attributing the successfully gained effects to CSR activities (Kirat, 2015). The general philanthropic gestures of solely donating to the local communities, like Shell's situation in the Niger Delta, are great examples of such practices (Frynas, 2005). According to the Shell's Sustainability report (2017), Shell is committed to invest in community projects to assist local people benefitting from the social and economic development. It argues that the investment is generally voluntary, however, sometimes required by local governments, and the intent of their social investment projects is to benefit all parties, Shell, the society and the environment. However, in the recent research has been studied, the business oriented CSR initiatives generally end with a failure since the primary motivation is not increase the development but rather gaining a positive reputation for the company (Kirat, 2015).

Even if Shell has been primarily focusing on the economic performance, it also might have been contributing its operations through the social investments, even though it has genuinely increased the social and economic welfare in the local communities. In 2017, Shell spent over 189 million dollars on social investments of which less than 50 percent was required by government regulations or contractual agreements. Through these investments, Shell assisted local programmes for community development, disaster relief, road safety, health and biodiversity (Shell, 2018).

It is widely noted that loss of public image affects directly on the corporate brand and through that might have an impact on the financial position. As previously mentioned, Shell has noticed the importance of corporate reputation already in the early 2000s, after the Niger delta events. As Shell has noted in the Annual report (2005, p.15): "Loss of business reputation may adversely impact results of operations and financial position. The Group

has a strong corporate reputation and Shell brand is one of the world's leading energy brands". Shell (2005) also states that the its general business principles impose how Shell conducts its business. By failing with these principles could impact Shell's reputation, which in turn might affect on the licence to operate and have a negative impact on the financial position.

Even though, if the fundamental reason of Shell's CSR practices is to enhance its public image and increase transparency within Shell's strategic operations, it also simultaneously contributes the energy transition towards a low-carbon future. As Shell states in its Annual report (2018, p 71): "Society faces a dual challenge: how to transition to a low-carbon energy future to manage the risks of climate change, while also extending the conomic and social benefits of energy to everyone on the planet. This is an ambition that requires changes in the way energy is produces, used and made accessible to more people while drstocally cutting emissions". Shell (2018) also argues that the need of GHG emissions reduction, which is largely caused by the production of fossil fuels, will shape the energy system in this century. The energy transition will create both opportunities as well as challenges in Shell's existing and future portfolio. One of these challenges with CSR in the fast paced environment for Shell is that if it unable to keep up the pace with society's energy transition or it is unable to serve the desired low GHG options to facilitate society's energy transition, it can have a negative impact on cash flows, the earnings, and financial condition (Annual report of Shell, 2018). Hence, it is noted that well-managed CSR undertakes more successful energy transition towards a low-carbon future.

## 5 CONCLUSIONS

In this chapter, the key findings of the research are considered and the answers to the research questions discovered. In addition, the managerial implication of the results will be examined as they are a contribution of the study. Finally, the limitations of the thesis and the implications for the future research are discussed to observe the imperfections of the research and provide novel ideas on how future study could consider the deficiencies of the subject.

### 5.1 Key findings of the research

This thesis seeks to find results and clarify the energy transition in an energy sector through the central precedents and processes in established firms. The outcomes of these results are estimated and also considered how the energy transition process is managed in the aspect of the incumbent multinational corporations. In order to understand the complex and multi-dimensional transition process in an energy sector, there are used Shell's, the case company's, strategic processes and precedents as an example to emphasize the difficulty of the transition process in established multinational corporations in this thesis. The transition process is considered here to explain the needed change to reach a low-carbon level in the future, which is defined to be 1.5 degrees Celsius temperature level (UNFCCC, 2019). In order to solve the research problem, the previous literature had been explored and the theoretical framework was created. The empirical analysis was conducted by reflecting the case company's strategic operations through the existing theoretical framework and utilized the received results. The two supplementary research questions were presented to support the main research question, and these sub-research questions will be answered on the basis of an earlier research and literature. The answers to the supplementary questions and the actual main research question are presented below.

#### 1. Supplementary question: Can multi-level perspective theory be applied in the energy transition, how?

The GHG emissions have rapidly increased in the past decades, therefore the inevitable energy transition is required. As Geels (2012) states that the reduction of carbon dioxide emissions can be only carried out by the deep-structural changes in the socio-technical

transitions. The specific management in transitions is required, and the multi-level perspective theory is an excellent tool for reflecting the multi-dimensional and challenging transition processes, especially explaining the dynamics of different levels of transitions.

The multi-level perspective theory describes the interactions between different levels within organizations's strategic operations, it is playing a key role in order to understand the different changes in the societal systems (Geels, 2002). In order to understand how the multi-level perspective theory can be applied in the energy transition, the organizational levels must be explained through a case company, Shell. The three different levels of Shell's strategic portfolio are defined in the thesis, and the levels are the following: (1) The research and development (R&D) sector as a niche level, (2) The incumbent strategic portfolio of Shell as a system level, and (3) All the external elements outside Shell are considered as a landscape, such as the legislations and laws, societies, governments, consumers and external parties (the international agreements, covenants, organizations).

First, the novelties are created in Shell's R&D sector in the niche level. If these novelties are noted to be successful, for instance the CCS technology, it will be set into the system level, in Shell's strategic portfolio (Geels & Raven, 2007). Secondly, Shell's strategic portfolio describes the current, active and global operations that Shell is practicing at the system level. A great example of the operations at the system level is when Shell obtained a market leader position in the gas business through the acquisition of the BG in 2016. The socio-technical landscape affects on every level with organization's internal operations. The external elements have a direct impact on the landscape, yet these elements are for instance climate change, consumer patterns and values, and various demands from other parties etc. The landscape creates a top-down pressure to Shell's operations always down to the niche level. The pressure has a power to force firms to change the internal operations, activities or even oblige the creation for new innovations (Geels, 2012). The multinational corporations confront constant social and policy pressure for the reduction of GHG emissions, and this has become a source of stress that causes numerous actions in different organizational levels. As Scrase & Smith (2009) state that societal awareness of climate change also creates a threat to the existing systems that brings social pressure of the carbon dioxide reduction in established corporations' operations.

However, the multi-level perspective theory has been developed since it explains the dynamics of the different levels in the transition process from one socio-technical system to another (Rip & Kemp, 1998). The theory is significant to consider in the decision-making process since it eases the understanding of complex transition processes and takes into account the societal aspect of the transitions. Major changes within the different levels have a direct impact on the landscape and on the contrary. The multi-level perspective theory is playing a significant role in order to understand the how transition processes occur within the organizations and different industries, yet it is especially a vital tool to assist in decision-making processes of the corporate management in an energy sector.

## **2. Supplementary question: How corporate social responsibility (CSR) occurs in the energy transition?**

In the fast-paced world, even the most business-based industries are considering the value of the corporate social responsibility in the business performance and they are increasingly taking into account CSR practices in the strategic portfolio, such as human rights, corporate ethics, society relations, employee relations, the legislation and environment (Moir, 2011). Corporate social responsibility is a vital tool for the corporate management since it brings a significant insight into the decision-making processes. It is possible to gain substantial benefits through well-managed CSR in the energy transition process if it is used properly and truthfully.

The recent studies of CSR field argue that there is a substantial relationship between the corporate social and the economic performance. As Kirat (2015) has stated that especially the energy companies are globally driven to engage in social investment in the economic performance. Additionally, the researchers have been suggested that responsible companies benefit from their improved reputation, hence, they might also be able to increase their ability to attract capital (Chang et al., 2017). Due to the energy transition, the CSR practices are more embraced today. Also, digitalization has forced organizations to act more responsibly today since people reach the information effortlessly through Internet and social media.

The energy companies might generally be in contradiction with the CSR practices, therefore, it is extremely important to implement CSR into the economic portfolio. While

considering the nature of an energy sector, the potential threats and risks on human rights, local communities and the environment are significant. As Shell has admitted while operating in high-risk areas from the environmental and human rights perspectives, accidents and natural disasters frequently occur. However, it is possible to avoid unnecessary accidents and hazards through well-managed CSR. If the energy companies are performing in a sustainable and secure way by avoiding these negative hazards, there is a possibility to improve the public image. Also environmentally friendly actions might enhance the corporate reputation, which in turn can improve the economic performance. For instance, Shell tries to avoid the negative impacts on the biodiversity and the ecosystem services by wastewater operations and it also has a zero-tolerance for the accidents of the employees. Thoroughly implemented CSR assist the corporate management earn the trust of the employees, consumers and external parties in transition processes, and it also brings operational transparency and good supplier relations that are also capable of facilitating the transition process.

However, by misusing CSR practices in the strategic operations, there is a possibility to even decelerate the progress of the comprehensive transition process, for instance, if CSR practices are utilized only to enhance the corporate public image. The current challenge with CSR is primarily concerning the additional contributions to foster the well-being of societies in the energy sector only to benefit economically from the public "charity" (Kirat, 2015). CSR indeed contributes vital relationships between the society and business, yet the energy companies should seek to enhance their business activities for "the greater good" rather than just improve the economic performance. Unfortunately, such behavior is possible in different business sectors, especially in major transition processes.

**The main research question: What are the central precedents and processes of the energy transition in established organizations in an energy sector and how these processes are managed?**

In this thesis, the fundamental focus is to consider the key precedents and processes of the energy transition process in incumbent organizations in an energy sector and also evaluate how these processes are managed. First, there are observed the key precedents and processes of the energy transition in established organizations through the case company,

Shell. Secondly, it is considered how these transitional operations are managed by reflecting the case company's operations throughout in an energy sector.

The population of the world has vastly grown in the past decades, it is around 7,5 billion today, yet it has predicted to be almost ten billion by the end of the century. Due to the increasing energy demand, the energy policy is requiring a substantial change to achieve the global warming in 1.5. degrees Celsius. In order to achieve the goal of a low-carbon future the energy companies must actually begin to limit their carbon dioxide emissions while responding to the growing energy demand. The needed changes must be profound, different by location, capital-intensive, and will take for decades. The essential key operations of a low-carbon future are considered as follows: (1) Investing in oil and gas, especially natural gas, to meet the increasing demand, (2) Bringing the clearer-burning natural gas to a global market, (3) Developing and investing in the CCS technology, (4) Advocating the government-led carbon pricing mechanism, (5) Building a profitable renewable energy business, and (6) Managing the carbon dioxide emissions from internal operations.

Analysis of the case company can lead to the conclusion that natural gas is considered to be a less polluting opportunity along with oil. It is still a fossil fuel, yet no non-carbon energy source has been invented to meet, for instance, the heavy-industrial demand. However, according to the International Energy Agency Data (2019), natural gas emits between 45 percent and 55 percent less carbon dioxide emissions than using other fossil fuel-based energy sources. For instance, through the acquisition of the BG, Shell gained the market leader position in the gas business, and today, gas is set in Shell's long-term strategy-plan portfolio along with oil. As mentioned, natural gas has an incumbent position in Shell's organizational level, yet it has also gained global reputation by being the less polluting energy source than oil. Additionally, Natural gas can also be an intermittent partner with the renewables since it can be mixed, for instance, with wind power to create more sustainable electricity. Indeed, the global energy transition requires a combination of the renewable energy sources and fossil fuels to meet the energy needs, and it also demands great investments on the industrial, civic and residential infrastructure. However, the fossil fuels cover over 80 percent of the primary global energy supply, and also the global network of the fossil fuels has been developed over a century. Thus, to bring up the scale of climate change, it would need enormous changes in already established operations.



Since the Paris agreement, new innovations and technologies, such as the CCS technology, were invented to reduce the carbon dioxide emissions in order to minimize the costs of external claims. The CCS technology is expected to have a significant role in the global climate response, and it is predicted that the CCS will be essential technology for achieving the goal of needed temperature level. However, in order to reach the needed temperature level, for instance, only Shell alone would need to store 6000 million tonnes of carbon dioxide by 2050, and the capacity of global CCS should have been 100 times bigger by the end of 2017. Along side with the fossil fuels, the renewable energy operations are also taking their place. However, the challenge of renewable energy is that it is usually generated locally, yet the comprehensive global infrastructure is mainly lacking.

By analyzing the corporate management actions in an energy sector, it can lead to the conclusion that the transition process consists of major challenges. The transitional progress towards a low-carbon future is already in arrears, and no certain party is solely responsible for it. However, the energy transition process is undergoing and various factors and parties might even accelerate it. Thus, the establish organizations must keep up with the pace of the transition, even though the changes of incumbent operations are extremely complex and take time. This might lead to different strategic management operations in an energy sector, for instance, Shell began to report voluntarily its safety, environmental and social performance in 1997, during the crisis of Niger Delta. There is a great possibility to enhance transparency of the performance and increase the corporate image through the voluntary reporting, however, the reports mainly consist of the positive improvements.

Since the business of the energy companies is highly risky, they are also expected to contribute to the society and nature. However, some of the organizations might have taken advantages of this, for instance, by creating different projects in host countries to cover up unethical actions, and thus, to enhance their corporate image. These contributions can be different projects to improve the employment and the well-being in the host countries, for instance, Shell has had numerous initiatives, such as different development programs, enhancing the children's education and biodiversity in the local communities. This has been part of Shell's CSR program to gain the goodwill of the society. The challenge is that oil-producing developed countries are generally underdeveloped and political mismanaged, which might expose to exploitation and corruption (Kirat, 2015). This makes it challenging to observe which company is operating ethically and which one unethically.

The energy companies are also in contradiction with well-managed CSR practices due to the range of negative impacts, including labor practices, environmental degradation, human rights violations and corruption (Ralph & Hancock, 2018). Hence, one of the vital strategic tools for the corporate management is the CSR in an energy sector. Even if the energy field is undergoing a change today, the established corporations must keep up with the pace of the transition. While considering CSR practices in the energy companies, it can be observed that the multinational corporations tend to utilize CSR practices in their strategic operations in order to "buy" more time for the transition. Since the established operations are extremely difficult to be changed, energy companies need to respond to external demands at some level in order to keep up the pace. Otherwise by failing to meet these requirements, it might have a major impact on cash flows, the earnings, and the financial conditions.

The conclusion can be drawn from the CSR analysis that the successful energy transition towards a low-carbon future is possible through a well-managed CSR, when a company genuinely utilizes it in its strategic decisions, not just to improve the corporate image or to cover up unethical actions. However, this is unfortunately not the case with the CSR practices generally, especially in the energy sector, due to the reasons mentioned above. The energy sector has its established operations that have evolved over the course of a century, and it is extremely challenging to rapidly change old practices over the next few years.

## **5.2 Contribution of the study**

The results of this research can be utilized by the corporate management level and other external parties in an energy sector as a framework for assisting to determinate their key transition operations in the organizational level. Moreover, the results enable to clarify the corporate management to decide the transition pathways and help to gain the deeper and multi-dimensional understanding of the energy transition process. This is possible due to the fact that this thesis deepens the conception of the transition process from the multi-dimensional aspects and takes into account the transition process from the strategic perspective of the business management.

The results of the thesis also serve a different approach to the energy transition process than in general. It considers the transitions in the socio-economic context, in which both the technical and social perspectives are emphasized. Though the thesis considers the energy transition process from a narrow perspective, the corporate management can benefit from the results and apply it to its business environment. The transition theories assist the management level to perceive the production matrix, yet analyze the novelties in the R&D section and decide the key operations in the strategic portfolio. Also it helps realizing the dynamics of all the operational levels, and specifically, how external factors have direct and indirect impacts on the business performance.

The corporate management should also pay particular attention to the decision-making process and the business operations, for instance the well-managed CSR assists a company to succeed in the energy transition process. It can benefit positively from the increased public image, and might even act as a pioneer in the energy sector. A genuine desire to change business strategies and develop internal operations truly produces long-term results, rather than just covering up the old practices with numerous projects and undertakings in the ongoing energy transition process. Extremely important for managing the transition process is to implement CSR comprehensively in the company's strategy since it will bring credibility to the organizations' business and also has an impact on the economic performance.

In this thesis, the precedents and processes of the energy transition in established organizations in the energy sector are observed, and then, the study focuses on how these processes are managed. Thus, the thesis is divided in two into two different sections, both of which contain significant observations for various decision-making processes from the energy transition point of view and are applicable to corporate management.

### **5.3 Limitations of the study**

There is a comprehensive limitation in trying to draw conclusions about the precedents and processes of the energy transition process in established organizations and managerial strategies of transition processes. While the value of this research is partially its ability to make universal conclusions about the complex phenomenon, it is extremely significant to recognize that there are still unnamed factors and dynamics concerning the energy

transition process. As this thesis is conducted before the actual transitional movement occurs, the effects and results of the energy transition can only be forecasted based on the ongoing strategic operations and decisions of the energy companies.

The results of this thesis cannot also be directly generalized in all transition processes since each process is a unique and the premises of transitions vastly differ. The extremely complex and multi-dimensional nature of transitions creates difficulties to analyze the transition processes. In this thesis, the structure and relations of the transition process were studied from one perspective at a time, assuming that other factors were constant. This creates limitations on the phenomenon itself. Also an interesting aspect in this research is that the ongoing energy transition process compel organizations to change their operations by fracturing the safe and familiar structures.

The document analysis as a research method was suitable for this study for practical reasons. In this thesis, there was analyzed the specific precedents and processes of the energy transition through the case company and the data collection was based on the available public data. Since the gathered data of the case company is based on the previous documentation, the reliability of the document analysis in the research is indispensable to consider the source of the material (Anttila, 1996). The sources utilized in the theoretical framework of the research have originally published in scientific publications, whereas the data of the case company that is used in empirian section is gathered from the public statistics, annual reports, other reports, websites, and blog posts. The sources used in the research can therefore be considered reliable. However, the gathered data of the research is universal since the study is a public thesis. In the perspective of this research, the most significant managerial level strategies of the case company are business secrets for which reason the result of the study might be distorted.

#### **5.4 Implications for future research**

The thesis provides insights on the ongoing energy transition process in an energy sector, but people are yet to see the actual results of the transition process. The results of the study provide a foundation for future research of the ongoing transition process in an energy sector. As Kirat (2015) emphasizes that particularly the organizations in an energy sector are globally driven to engage in social investment in the economic performance. However,

as the results of this thesis imply that the multinational energy corporations might not be able to keep up with the pace, it gives an interesting opportunity for further studies on how transnational corporations succeed in a energy transition in the next decades. Furthermore, there is a possibility to inspect if an energy sector will experience the total transformation where the multinational energy corporations are left behind since novel and agile technology start-ups overpower the markets.

The purpose of this thesis has been to discover the precedents and processes of the energy transition in established organizations in a energy sector and also analyzed how these processes are managed. The emphasis has been specifically in the key operations and processes in terms of the transition process. Secondly, there has been considered how the corporate management has utilized corporate social responsibility in the decision-making processes. Therefore in future studies, it would significant to research the future perspectives of startups from the aspect of the ongoing transition in a energy sector.

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